SDG 12: Responsible Consumption and Production

SDG 12 in India: Responsible Consumption and Production

Sustainable Development Goal 12 (SDG 12) emphasizes ensuring sustainable consumption and production patterns. In a rapidly developing country like India, balancing economic growth with environmental sustainability is critical. The Indian government has taken significant measures to reduce waste, promote resource efficiency, and transition to a circular economy.

https://upes-production-cvb3e7frghdda0a4.z01.azurefd.net/drupal-data/pdfs/Environment&Energy-Usage-Policy.pdf

Efforts by the Indian Government to Achieve SDG 12

1. **National Resource Efficiency Policy**:
   - This policy promotes the efficient use of natural resources across sectors such as manufacturing, agriculture, and construction.
   - The government aims to achieve a 30% increase in resource efficiency by 2030 through sustainable production practices.
2. **Waste Management Rules**:
   - Comprehensive waste management rules cover **solid waste**, **plastic waste**, **e-waste**, and **hazardous waste**.
   - Programs like **Swachh Bharat Mission** emphasize waste segregation, composting, and recycling.
3. **Plastic Waste Management**:
   - Single-use plastics have been banned in various states to curb plastic pollution.
   - Initiatives like **Unplastic India** focus on promoting alternatives to plastic and creating awareness about its environmental impact.
4. **Energy Efficiency Programs**:
   - The **Perform, Achieve, and Trade (PAT)** scheme encourages industries to improve energy efficiency and trade energy-saving credits.
   - The **Energy Conservation Building Code (ECBC)** mandates energy-efficient construction practices in commercial buildings.
5. **Promotion of Circular Economy**:
   - The government is pushing for recycling and reusing materials in industries such as textiles, electronics, and construction.
   - Initiatives like the **National Electric Mobility Mission Plan (NEMMP)** promote the recycling of lithium batteries and other electronic waste.
6. **Sustainable Agriculture**:
   - Programs like **Paramparagat Krishi Vikas Yojana (PKVY)** encourage organic farming and reduce dependency on chemical inputs.
   - **Zero-Budget Natural Farming (ZBNF)** promotes resource-efficient farming techniques.
7. **Green Business Practices**:
   - The **Green Rating for Integrated Habitat Assessment (GRIHA)** certifies buildings based on their environmental performance.

- Companies are incentivized to adopt sustainable practices under India's **Corporate Social Responsibility (CSR)** laws.

8. **Consumer Awareness Campaigns**:
   - Initiatives like **Not In My Backyard** and **Say No to Plastic** encourage responsible consumer behavior.
   - Education programs in schools and colleges foster awareness about sustainability.

SDG 12 at the University of Petroleum and Energy Studies (UPES)

UPES integrates SDG 12 into its campus operations, education, research, and community engagement. The university emphasizes responsible consumption and sustainable production through eco-friendly practices, awareness campaigns, and innovative projects.

1. **Sustainable Campus Operations**:
   - UPES implements waste segregation and recycling systems, ensuring minimal landfill contributions.
   - The campus includes energy-efficient buildings, rainwater harvesting systems, and solar power installations.
2. **Reduction of Plastic Use**:
   - Single-use plastics are banned on campus, and students and staff are encouraged to use sustainable alternatives.
   - The university conducts awareness drives to promote the adoption of reusable materials.
3. **Research on Sustainable Practices**:
   - Faculty and students engage in research projects on renewable energy, waste-to-energy systems, and sustainable materials.
   - Collaborative initiatives focus on developing innovative solutions for resource efficiency and circular economy practices.
4. **Eco-Friendly Events**:
   - All events at UPES adhere to green protocols, such as using biodegradable materials and minimizing waste.
   - Conferences and workshops on sustainability foster a culture of environmental responsibility.
5. **Education and Curriculum Integration**:
   - UPES offers courses on sustainable engineering, environmental management, and renewable energy technologies.
   - Students learn about life cycle assessments, resource efficiency, and sustainable production as part of their academic training.
6. **Community Engagement**:
   - The university conducts waste management and composting workshops in local communities.
   - Students participate in clean-up drives, e-waste collection programs, and tree-planting initiatives.
7. **Awareness Campaigns**:
   - Campaigns like "Reduce, Reuse, Recycle" and "Sustainability Week" encourage the university community to adopt responsible consumption practices.
   - Student organizations lead initiatives to raise awareness about the environmental and economic benefits of sustainable living.
8. **Green Innovation**:

- Student-led projects include innovations like solar-powered waste compactors and water-saving irrigation systems.
- The university encourages entrepreneurship in green technologies through incubation programs and funding opportunities.

Impact of UPES's Contributions to SDG 12

By promoting responsible consumption and sustainable production practices, UPES exemplifies its commitment to SDG 12. The university fosters environmental awareness, integrates sustainability into its curriculum, and engages in meaningful community outreach. Through its initiatives, UPES not only contributes to reducing its environmental footprint but also inspires students and the broader community to embrace sustainable lifestyles and practices.

https://upes-production-cvb3e7frghdda0a4.z01.azurefd.net/drupal-data/pdfs/Environment&Energy-Usage-Policy.pdf

An action plan to reduce plastic waste on campus

1. Reducing Single-Use Plastics: Initiatives to eliminate single-use plastics such as straws, utensils, and bags, polyethene, etc.

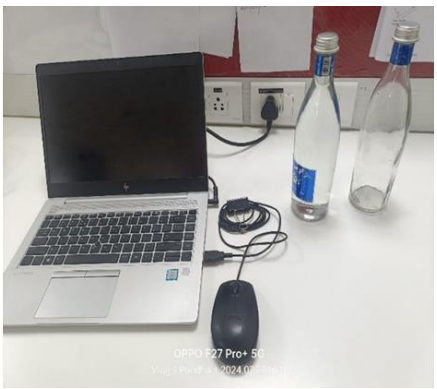
2. Recycling Programs: Enhanced recycling facilities and educational programs to improve recycling rates.

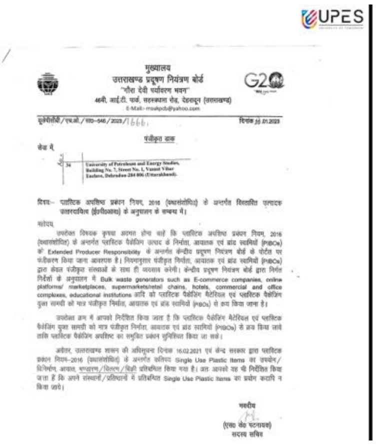
3. Reusable Alternatives: Encouraging the use of reusable water bottles, coffee cups, and containers through campus-wide campaigns.

4. Sustainable Purchasing Policies: Procuring products with minimal plastic packaging and supporting vendors with sustainable practices.

5. Educational Outreach: Workshops, seminars, and awareness campaigns to educate students and staff about the impact of plastic waste and how to reduce it.

6. Partnerships and Innovations: Collaborating with organizations and startups focused on developing new, sustainable materials or recycling technologies.





UPES

मुख्यालय
उत्तराखण्ड प्रदूषण नियंत्रण बोर्ड
"गौरा देवी पर्यावरण भवन"
46बी, आई.टी. पार्क, सहस्त्रधारा रोड, देहरादून (उत्तराखण्ड)

पंजीकृत डाक

सेवा में,

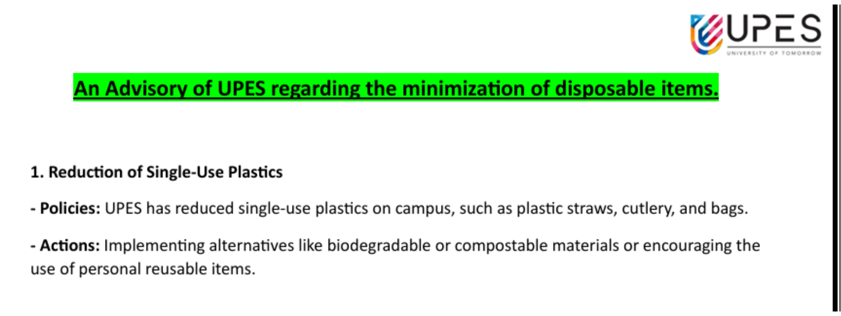
University of Petroleum and Energy Studies,
Building No. 7, Street No. 1, Vasant Vihar
Enclave, Dehradun 248 006 (Uttarakhand).

भवदीय

सदस्य सचिव

An Advisory of UPES regarding the minimization of disposable items

Pdf evidence 3



UPES
UNIVERSITY OF TOMORROW

An Advisory of UPES regarding the minimization of disposable items.

1. Reduction of Single-Use Plastics

- Policies: UPES has reduced single-use plastics on campus, such as plastic straws, cutlery, and bags.

- Actions: Implementing alternatives like biodegradable or compostable materials or encouraging the use of personal reusable items.

1. Reduction of Single-Use Plastics - Policies: UPES has reduced single-use plastics on campus, such as plastic straws, cutlery, and bags. - Actions: Implementing alternatives like biodegradable or compostable materials or encouraging the use of personal reusable items.

2. Promotion of Reusable Alternatives - Programs: Initiatives to promote the use of reusable water bottles, coffee mugs, and containers among students and staff. - Facilities: Providing ample water refill stations and cup-sharing programs in dining areas.

3. Campus-wide Recycling and Waste Management - Recycling: Establishing comprehensive recycling programs with vendor partners and clearly marked bins around the campus. - Waste Reduction: Encouraging reduction in waste generation through educational campaigns and events.

4. Sustainable Purchasing Policies - Procurement: Adopting policies that prioritize purchasing products with minimal or recyclable packaging. - Vendor Requirements: Working with vendors who have sustainable practices and packaging.

5. Educational Initiatives - Workshops and Campaigns: Hosting workshops and awareness campaigns to educate the campus community about the impact of disposable items and the benefits of sustainability.

6. Green Campus Committees - Advisory Boards: Establishing committees or advisory boards focused on sustainability, which may include student representation to ensure active participation in decision-making.

For the most accurate and up-to-date information about UPES's specific policies and initiatives regarding the minimization of disposable items, I'd recommend reaching out to the university's sustainability office or reviewing their official website and recent sustainability reports.

Waste Paper Recycling Laboratory

https://research.upes.ac.in/waste-paper-recycling-laboratory/ [1]

Primarily focus of this research laboratory is on waste paper recycling. The rationale of this focus stems mainly from the fact that the world consumption of paper products is massive and therefore the DISPOSAL problems are enormous; traditionally involving either incineration or landfill. Our basic idea was to bring a balance between the environment and the use of technology for the economic independence of rural women. This project aimed to help rural women from the indigenous community to earn a fair wage by teaching them how to make high-quality goods using waste paper viz paper pencils, jewellery, stationery items etc.

In a lab we have a set of six machines Rolling Machine, oven, cutting machine, abrading machine and coating machine. The cost of machines is around 9.5 lakhs [Including about 50kgs of gum and 10 cartons [3500 of HB lead per carton].

Stop Plastic Solution

https://www.facebook.com/greenupupes/photos/a.1519593978254906/3067931463421142/ [2]

Plastic pollution has become a global concern, as our planet is drowning in plastic litter and microplastics. While plastic has many valuable uses, societies have become highly dependent on single-use or disposable plastic — with severe environmental consequences.

Plastic pollution is the build-up of plastic objects and particles in the environment (for example - bags, plastic containers, and microbeads) that harms wildlife, natural and wildlife habitats, and mankind. Plastics that pollute the environment are classified as micro, meso, or macro debris, depending on their size.

Only 9% of all plastic waste ever produced has been recycled. About 12% has been incinerated, while the rest — 79% — has accumulated in landfills, dumps or the natural environment. This accumulated plastics on our land deteriorates its fertility and in water bodies ruins its purity, thus affecting the marine life.

As plastic is a global issue, international cooperation is needed to coordinate actions to have an efficient decision making in order to tackle this major environmental problem. Several initiatives and activities exist aiming at addressing the plastic waste problem and eliminating plastic litter entering the oceans. There are a few things that governments can do — from running public awareness campaigns, to offering incentives for recycling, to introducing levies or even banning certain products outright.

It is not only the responsibility of our government but also our individual responsibility to do our part in reducing the use of plastics. We can use cloth bags and paper bags as alternatives to plastic bags. It is only when we, as responsible global citizens are aware of the harmful impacts of plastic on our environment and by taking initiatives to reduce its usage, can reduce the plastic pollution.

Let's Learn Waste Management

https://www.facebook.com/greenupupes/photos/a.1519593978254906/3044270325787256/ [3]

Whenever it comes to Production, Manufacture, and Process, a term is common - Waste and management of waste is most important for a better future but when it comes to management, humans fall back to their skills. But still, there are many who are holding the pillars who believe in the idea of Improved Human Health, Preserving The Environment, Protecting Marine and Animal Life, and a clean future for the coming generation. Waste management is the key to many new ways of production methodologies new alternatives and who knows many new products yet to be discovered. Waste management has a lot of potential only thing is how much you desire to discover!

Advancements and Innovations in Recycling Engineering (AIR 2021)

https://easychair.org/cfp/air2021 [4]

Recycling engineering and Waste Management is one of the key problems of modern society due to the ever-expanding volume and complexity of discarded domestic and industrial waste. It has become one of the most significant environmental issues, particularly in developing countries like India. In India, approach towards solid waste management is unscientific. Even today, a large portion of solid waste is being dumped indiscriminately on the outskirts of towns or cities, without any prior treatment, which is leading to groundwater contamination and an increase in pollution across the country.

India has been rather struggling with its policies to mitigate the problem of solid waste management. Recent advancements in this field are being introduced and research and development is occurring continuously. Considering the case on a global scale, the increasing trend in solid waste generation throughout the world can be ascertained with the rapid industrialization, urbanisation, population growth rate and economic growth of each nation. The global trend varies from nation to nation. Some countries have rather taken important measures and introduced new technology in this field to curb the menace of solid waste. But the underdeveloped and developing nations find it hard to introduce new measures and implement it.

The Department of Health Safety Environment & Civil Engineering, University of Petroleum & Energy Studies, Dehradun in collaboration with The Department of Chemical Engineering, Hindustan Institute of Technology & Science (HITS), Chennai, India & The Department of Hydrology and Hydrogeology, Tashkent Institute of Irrigation and Agricultural Mechanization Engineers, Uzbekistan, is pleased to announce the International Conference on Advances and Innovations in Recycling Engineering (AIR-2021) scheduled on 06-07 August 2021.

The conference provides a forum for the exchange of scientific information and work on the current situation of waste management amongst professionals, researchers, Government departments and local authorities.

AIR-2021 aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results on all aspects of waste management and recycling. It also provides an interdisciplinary platform for researchers, practitioners, and educators to present and discuss the most recent innovations, trends, and concerns as well as practical challenges encountered and solutions adopted in the fields of Waste management. AIR-2021 will furnish a study and energetic manifesto and it focuses to boost the refurbishment of spectra of "Recycle today, for a better tomorrow."

Submission Guidelines

Authors are invited to submit full paper by July 20 2021 to AIR 2021. Authors are requested to visit the "Authors Section" at https://air2021.upes.ac.in/. Upload the Abstracts and full paper to https://easychair.org/conferences/?conf=air2021 or by email to The Consference Secretary at air@ddn.upes.ac.in.

All papers must be original and not simultaneously submitted to another Journal or Conference.

The interests of the conference include, but are not limited to, the topics related to Waste Management.

The broad areas for the conference are as under:

- Application of Nanotechnology in Waste Management.
- Sustainability and Environment.
- Clean Development Mechanism.
- Municipal & Agriculture Waste Management.
- Paper & Plastic waste management.
- E-waste & Biomedical Waste Management.
- Waste Management in Oil & Hydrocarbon Industry.
- Reduce, Reuse, Recycle and Recovery (4Rs).
- Energy from Waste.
- Hazardous Waste Management.
- Waste Treatment Technology, Innovation and Planning.
- Construction & Demolition Waste Management.

Environmental Club brings recycling to MSMS, MSES, and UPES

https://mshsprospector.org/18457/showcase/environmental-club-brings-recycling-to-msms-mses-and-upes/ [5]

The recycling symbol is iconic as a symbol of renewability and reusability all throughout the world.

In recent years, the Manitou Springs High Schools' Environmental Club has brought more attention to environmental issues through its events and hard work toward promoting planet health and awareness. More recently, interest has been brought towards starting recycling programs at the Manitou School Districts lower grade schools, such as the Manitou Spring Elementary School and Ute Pass Elementary School.

While much has been done to bring awareness to recycling and the benefits of reducing waste in our schools, some may still question how much recycling benefits our community. Does it make a difference?

The short answer is yes. Recycling has been shown to substantially impact areas such as climate change and waste reduction. The United States Environmental Protection Agency quotes Waste Reduction and Economic Security as among the benefits of recycling.

Not only that, but numerous green jobs in recycling and manufacturing have sprouted from recycling being enforced in communities countrywide. These manufacturers depend on recycling programs for recyclable waste, which can then be reused rather than dumped into landfills. Not only do these manufacturers provide green jobs, but they have an essential role in economic stability in their conservative energy efforts.

"Because recycled materials have already been refined and processed once; manufacturing the second time is much cleaner and less energy-intensive than the first," Stanford's website said.

In short, recycling has many positive environmental and economic effects that rely on recycling programs in multiple communities.

However, these reasons alone are not the only benefits of starting recycling programs in our schools. Recycling programs in the other schools of Manitou Springs School District would promote planet care and awareness to young students, some of the most influential people in our community.

As young students grow, it is natural that they will eventually take what they've learned from school to ultimately impact the world around them. That is why I believe it is important that these students learn the importance of recycling early.

This would not be a drastic change for students at MSES, where already planet awareness is strongly advertised to younger students through little ways, such as the outdoor and indoor gardens cared for by the school. A recycling program would not only be beneficial to the student's future but could quickly be adopted by everyone at the school, staff and students alike.

No matter what one's view on climate change, it is always important that communities know the importance of recycling and its positive effects. I believe that the decision to start recycling programs at these schools would not only be a beneficial decision but a positive influence on Manitou's community as a whole.

Researchers from UPES Dehradun Develop Novel Method to Convert PPE into Biofuels

https://weather.com/en-IN/india/coronavirus/news/2020-08-05-researchers-from-upes-dehradun-develop-novel-method-to-convert [6]

PMC health workers in PPE kits at their swab testing duty at a centre on Sinhagad road, Pune.

(Aditya Waikul/BCCL, Pune)

Plastic from used personal protective equipment (PPE) can and should be transformed into renewable liquid fuels, according to Indian researchers.

The study, published in the journal Biofuels, suggested a strategy that could help to mitigate the problem of dumped PPE - currently being disposed of at unprecedented levels due to the current COVID-19 pandemic - becoming a significant threat to the environment.

The research from the University of Petroleum and Energy Studies (UPES) in Uttarakhand shows how billions of items of disposable PPE can be converted from its polypropylene (plastic) state into biofuels - which is known to be at par with standard fossil fuels. "The transformation into biocrude, a type of synthetic fuel, will not just prevent the severe aftereffects to humankind and the environment but also produce a source of energy," said study lead author Dr Sapna Jain from UPES.

There is high production and utilisation of PPE to protect the community of health workers and other frontline workers of COVID-19. The disposal of PPE is a concern owing to its material i.e. non-woven polypropylene. "The proposed strategy is a suggestive measure addressing the anticipated problem of disposal of PPE," Jain said.

During the current COVID-19 pandemic specifically, PPE is being designed for single-use followed by disposal. Once these plastic materials are discharged into the environment they end up in landfills or oceans, as their natural degradation is difficult at ambient temperature. They need decades to decompose.

Recycling these polymers requires both physical methods and chemical methods. Reduction, reuse and recycling are the three pillars of sustainable development that can help to prevent the disposal of plastic in the environment. The research team reviewed many related research articles as they looked to explore the current policies around PPE disposal, the polypropylene content in PPE, and the feasibility of converting PPE into biofuel.

In particular, they focused on the structure of polypropylene, its suitability for PPE, why it poses an environmental threat and methods of recycling this polymer. Their conclusive findings call for the PPE waste to be converted into fuel using pyrolysis. This a chemical process for breaking down the plastic at high temperature - between 300-400 degrees centigrade for an hour - without oxygen.

According to the researchers, this process is among the most promising and sustainable methods of recycling compared with incineration and landfill.

"Pyrolysis is the most commonly used chemical method whose benefits include the ability to produce high quantities of bio-oil which is easily biodegradable," said study co-author Bhawna Yadav Lamba.

"There is always a need for alternative fuels or energy resources to meet our energy demands. The pyrolysis of plastics is one of the methods to mitigate our energy crisis," she noted.

Green business ideas that are a testament to UPES values of innovation and inclusivity

https://blog.upes.ac.in/green-business-ideas-that-are-a-testament-to-upes-values-of-innovation-and-inclusivity/ [7]

With meticulous planning and commitment to the society, some young entrepreneurs from UPES are positively impacting the planet and finding commercial success in the process

For a nation's progress, it is important that the universities equip their students with robust entrepreneurial skills and help them create jobs. UPES has been a wellspring and breeding ground of entrepreneurs with smart business ideas contributing to the nation's economy. Read on to know more about some of the start-ups strengthened by the student entrepreneurship ecosystem at the campus. These are run by eco-minded entrepreneurs who are seeking to make a positive impct on the global and local environment through their sustainable business ideas.

Environ Tech

Nishant Belwal, Nandit Srivastava and Neel Adwani from UPES School of Engineering thought of an innovative waste bin that is as convenient as a normal bin, but smart enough to segregate waste on its own. The bin ensures separation of waste at the source and can be used in all the metropolitan and local municipalities. It is aimed at making the waste collection service and recycling of waste more efficient, thereby protecting the environment.

Highlighting the need for effective waste management measures, Nishant says, "The amount of waste our country generates is enormous. India is also one of the largest importers of scrap material. We researched the process of waste management and disposal. We realized that people were not segregating the waste; instead disposing of all the waste together. If this waste had been segregated right at the source, it could be used in a variety of ways."

Speaking about the challenges, Nishant adds, "Contacting people and creating awareness about waste segregation was a big problem for us. We intend to get a contract from the Uttarakhand government

and place bins all over the state. We will contact the private sector to install bins in their area and efficiently manage waste. The application process we roll out will gather global users."

Talking about the role of UPES in nurturing their business idea, Nandit says, "UPES will help us in testing and deployment of the product by providing us with a platform to place it on the campus. Our mentors helped us with all the documentation and guided us through our business model."

From And To Nature LLP

Paurush Dobhal from UPES School of Engineering, along with Tanmay Benjwal, Vibhor Singh, and Utkarsh Singh, wanted the environment to be a little greener. From And To Nature is a green tech startup revolutionising the bottled water industry with its unique bamboo bottles and supply chain. Commended on multiple platforms for their mission against plastic and vision to empower local craftsmen communities, they now have some of the most reputed hotels, cafes, restaurants, and corporate institutions as their customers.

"I embarked on this journey to provide an eco-friendly sustainable plastic-free alternative to PET bottled water. Our bottles are locally hand-crafted, all-natural, 100% biodegradable, reusable, food-grade, eco-friendly, sustainable, and best-in-line with quality and aesthetics and a food-grade inner inert coating. With our business model, we not only tackle the plastic waste, but empower and employ the local handicraft communities as well," says the founder of From And To Nature LLP, Paurush.

He adds, "With the constant guidance our mentors at UPES we were able to build a business model and a scalability plan. We are about to launch the 1st pilot run soon."

Reduce Reuse Recycle

https://www.facebook.com/greenupupes/photos/a.1533322970215340/3022352494645706/ [8]

Reduce Reuse Recycle are the three words that can save us for many future catastrophes that are showing their faces in form of Climate Change, Land and Sea pollution, Food Scarcity and many unknown issue yet to be discovered and we are lucky that we still have time in our hand to change things all it will take is a small step.

Recycling Engineering

https://www.facebook.com/greenupupes/photos/a.1519593978254906/2995589413988681/ [9]

Recycling is significant in today's world, as we need to leave this planet for our future generations. Recycling starts at home. We've been indiscreet so far with the manner in which we've treated Mother Earth, and it's an ideal opportunity to change, not just the way in which we do things yet the way in which we think.

As time passes, the population is expanding. With that, the amount of waste so delivered is additionally expanding manifolds. The more the waste creation, the more is the measure of room needed to dump these wastes. Presently, it should be recalled that the space accessible on earth is extremely restricted, and it is clearly dependent upon us to utilize it prudently.

Participate in the Panel discussion, hear from knowledgeable speakers, and learn about Advances and Innovations in Recycling Engineering on 22 October 2021 from 9.30 AM-11:30 AM.

Theme:- Recycling for Strengthening Economic Growth, Social Equity and Environmental Conversation

For more details, Visit: https://air2021.upes.ac.in

Zoom meeting link: https://zoom.us/j/9897106992

Recycle today, for a better tomorrow.

https://www.facebook.com/greenupupes/photos/a.1519593978254906/2994523190761970/ [10]

On a daily basis, the world produces close to 4 million tonnes of waste. Waste recycling is one of the well-known initiatives for combating overflowing landfills and polluted water bodies. Recycling is one of the 3 R's, reduce, reuse, and recycle, which aims at promoting sustainable living. It's evident, now more than ever, that we are not doing enough.

Participate in the conference, hear from knowledgeable speakers, and learn about advances and innovations in recycling engineering.

Theme:- Recycle today, for a better tomorrow.

For more details, Visit: https://air2021.upes.ac.in

https://upes-production-cvb3e7frghdda0a4.z01.azurefd.net/drupal-data/pdfs/Environment&Energy-Usage-Policy.pdf