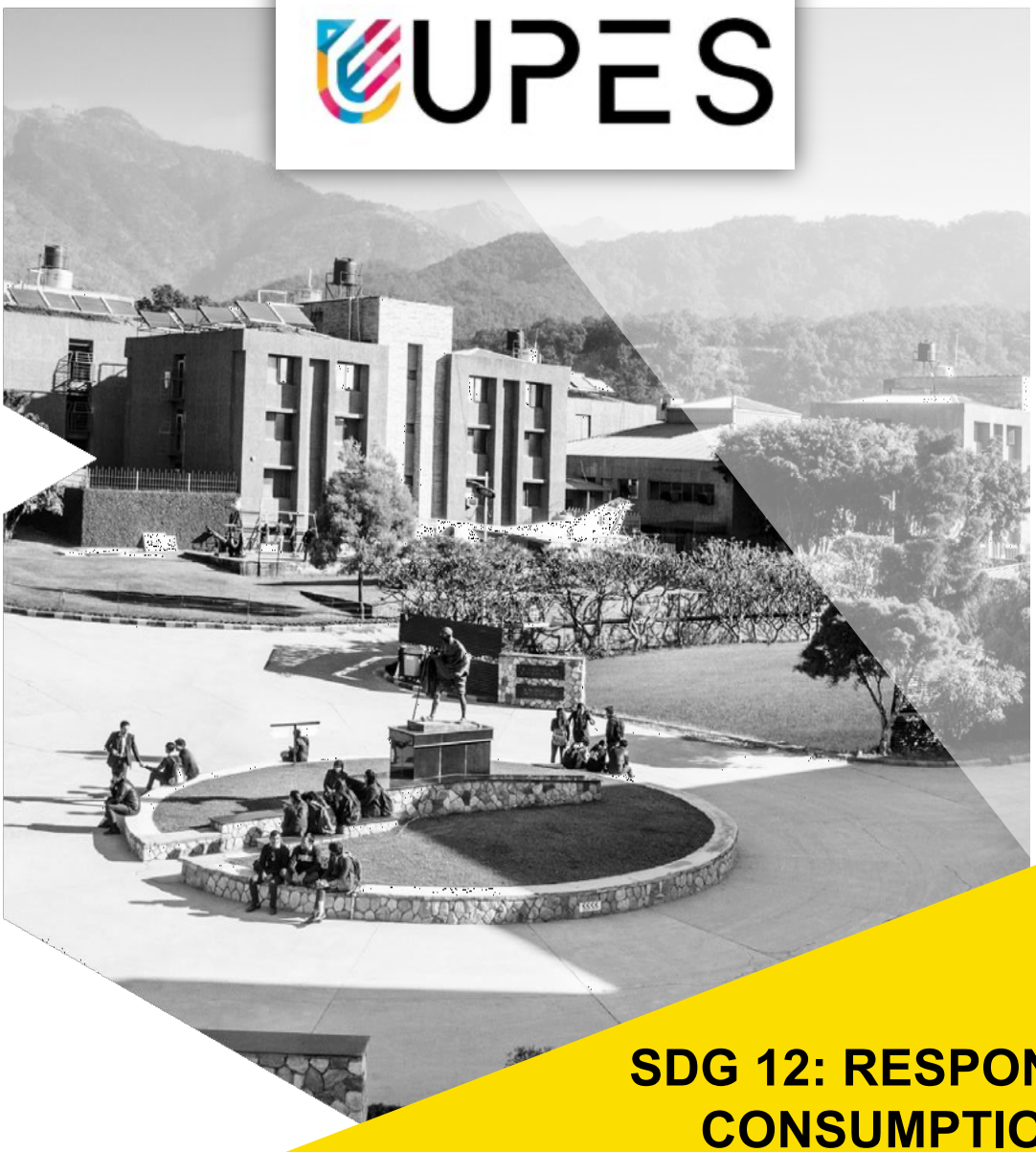
SUSTAINABLE DEVELOPMENT GOALS

UPES



SDG 12: RESPONSIBLE CONSUMPTION AND PRODUCTION

2025

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Responsible Consumption and Production (SDG 12) – Sustainability Report for UPES, India

UPES (University of Petroleum and Energy Studies) in Dehradun, India is committed to Sustainable Development Goal 12: **Responsible Consumption and Production**, aligning its campus operations, academics, and community outreach with this global goal. SDG 12 emphasizes efficient resource use, waste reduction, circular economy practices, and sustainability awareness [1]. In India, national policies encourage responsible consumption through waste management initiatives, recycling, and resource efficiency programs [2]. UPES contributes to these objectives through comprehensive measures on campus and beyond, implementing eco-friendly campus practices, integrating sustainability in curriculum, and engaging stakeholders in reducing environmental impact [2]. The following report outlines UPES's key initiatives and achievements in responsible consumption and production, as prepared for the Times Higher Education Impact Rankings.

Campus Waste Reduction and Resource Management Initiatives

UPES has undertaken robust on-campus programs to reduce material consumption and responsibly manage waste streams. With a university population of roughly 15,000, the campus generates about **1.2 tons of solid waste per day**, including food scraps from canteens, paper, plastic, metal, and electronic waste from offices and student activities [3]. A comprehensive waste management system is being implemented to address this challenge, with the aim of **cutting landfill disposal by 50% within two years** [3].

Key elements of the campus waste strategy include **source segregation** and recycling infrastructure. Waste is separated at the point of disposal into wet (organic), dry (recyclables like paper, plastic, metal), and e-waste categories [3]. Clearly labeled **recycling bins** for each category are placed in dorms, cafeterias, libraries, and academic buildings to encourage proper sorting [3]. Organic wet waste from dining facilities and green campus trimmings is sent to an on-site **composting unit**, producing fertilizer that is used in the university's gardens and grounds [3]. This closes the loop by returning nutrients to campus landscaping, reducing the need for chemical fertilizers. In addition, UPES conducts dedicated **e-waste collection drives** to safely gather and recycle electronic waste, partnering with authorized recyclers so that hazardous materials are kept out of landfills [3]. Through these efforts, the university is instilling the practice of the "3Rs" – **Reduce, Reuse, Recycle** – in daily campus life [3]. Student-led sustainability groups (such as the GreenUP initiative) run regular awareness campaigns on waste segregation and reduction, spreading the message that small steps in waste prevention can avert future environmental crises [2].

Several **innovative projects** further support waste reduction on campus. UPES hosts a **Waste-Paper Recycling Laboratory** which not only processes discarded paper but also serves a social purpose. In

this lab, students and faculty developed a program to train rural women in crafting useful products from waste paper – including paper-based pencils, jewelry, and stationery items – thereby striking a balance between environmental technology and economic empowerment [2]. This initiative helps recycle the massive volume of paper that would otherwise be incinerated or landfilled, while providing livelihood opportunities for the local community. By teaching communities to turn waste into marketable goods, the program exemplifies a campus-led circular economy model. UPES students have also engineered solutions for on-campus waste challenges as part of their projects – for example, designing a **"Waste Management" flagship project that innovates in collection and processing techniques** [1]. These hands-on projects contribute to a culture of sustainability and problem-solving among the student body.

Beyond solid waste, UPES manages other resources responsibly to minimize the campus environmental footprint. Notably, the university has made policy decisions to **reduce unnecessary consumption of utilities**. All conventional lighting fixtures across campus are being retrofitted with energy-efficient LED lights, and solar water-heating systems with a total capacity of **61,500 liters** have been installed to supply hot water sustainably [4]. By improving electrical efficiency and using solar thermal energy, these measures cut down on electricity demand and associated carbon emissions. The campus also maintains a **Unity Power Factor**, ensuring that electrical systems operate at maximum efficiency with virtually zero energy loss [4]. On the water front, UPES has been certified as a *"Zero Water Discharge"* campus – it operates a recycling system with **550 kiloliters per day capacity**, reusing treated wastewater for horticulture and landscaping [4]. Thanks to rainwater harvesting and reuse, the university achieves an estimated **89% water savings** and avoids burdening municipal water supplies [4]. In an innovative move, UPES even eliminated all RO (reverse-osmosis) water purification systems on campus after tests showed the municipal supply was potable; this step prevents the **waste of three liters of water for every liter of RO-purified water**, saving roughly **30 million liters of water annually** [5]. Together, these initiatives in waste, energy, and water management significantly reduce the campus's consumption of natural resources and generation of waste, reinforcing UPES's role as a responsible steward of the environment.

Sustainable Procurement Policies and Green Operations

Recognizing that sustainable consumption starts with smart purchasing, UPES has instituted a **Sustainable Procurement Policy** to guide all campus purchasing decisions. This policy explicitly integrates environmental, social, and economic criteria into the procurement process [6]. On the environmental side, the university prioritizes **green purchasing** – favoring products and services with minimal ecological impact across their lifecycle. UPES seeks out suppliers with strong environmental credentials and chooses materials that are recyclable, biodegradable, or made from sustainable resources whenever feasible [6]. For example, the policy calls for reducing single-use plastics in purchased goods and packaging, opting instead for reusables or eco-friendly alternatives [6]. By selecting energy-efficient equipment and low-waste products, the university also aims to lower the indirect emissions and waste associated with its supply chain.

Equally important are the social and ethical dimensions of procurement. UPES is committed to **ethical sourcing** – working only with vendors who uphold fair labor practices, safe working conditions, and human rights [6]. Contracts are preferentially awarded to companies that demonstrate corporate social responsibility and compliance with labor standards. The university also **supports local and small businesses** through its purchasing choices [6]. Whenever possible, goods and services are sourced

from local or regional suppliers to boost the local economy and shorten supply chains (thus reducing transportation footprints). Engaging local vendors – including those from small, diverse, or socially disadvantaged groups – not only contributes to community development but also embeds social equity into the university's operations [6]. By building long-term relationships with like-minded suppliers, UPES leverages its purchasing power to promote broader adoption of sustainability in industry. This approach to procurement ensures that the university's commitment to responsible consumption is reflected not just in end-use of products on campus, but at every step of the supply chain, from sourcing to disposal.

In practice, the sustainable procurement policy has led to tangible changes in campus operations. For instance, cleaning supplies and office paper with eco-labels (indicating recycled content or non-toxic ingredients) are preferred for university use. Cafeterias have moved toward biodegradable or reusable utensils in place of single-use plastics, aligning with the policy's guidance. These efforts are complemented by **awareness training for staff involved in purchases**, so that everyone from the logistics team to faculty ordering lab supplies understands the importance of considering sustainability criteria. By formalizing green procurement practices, UPES not only reduces its direct environmental impact but also sets an example in the higher education sector for how institutions can **"buy green"** and influence production patterns upstream.

Research and Innovation in Sustainable Materials and Circular Economy

UPES leverages its strong research culture to drive innovation in sustainable production, materials science, and circular economy models. As a university specializing in energy and technology, UPES has positioned itself at the forefront of sustainability-oriented research. Several interdisciplinary projects and laboratories focus on turning waste streams into resources and developing cleaner production methods. For example, researchers at UPES have explored **value-added products from agricultural and industrial waste** – conducting studies on creating novel sustainable materials from textile waste generated by the garment industry, as well as strategies to repurpose waste wood into plastic-free, chemical-free toys [4]. These projects exemplify the circular economy principle of keeping materials in use and designing out waste. In another initiative, the university organized workshops on **bamboo as a sustainable material**, guiding artisans and engineers in developing value-added products from bamboo, which is a fast-growing, renewable resource [4]. Such research not only offers solutions to reduce reliance on plastics and virgin timber, but also supports local industries in adopting greener materials.

A standout innovation at UPES is the pilot **Integrated Wastewater Reclamation Plant** launched on campus, which demonstrates cutting-edge clean manufacturing and resource recovery. This pilot plant uses *microalgae* to treat campus sewage water, harnessing biological processes to clean the water while producing useful byproducts [7]. As the algae consume nutrients and impurities in the wastewater, they generate biomass that is processed into **bio-oil, biogas, and bio-manure** – a remarkable example of turning waste into energy and fertilizer. This closed-loop system aligns with sustainable industrial practices by simultaneously treating waste, producing renewable energy, and yielding organic fertilizer for use in landscaping [7]. The project, driven by faculty and student researchers, serves as a living lab for studying algae-based bioremediation and demonstrates how campuses can model circular economy solutions on a small scale.

Research at UPES also targets **reducing pollution through product innovation**. Through project-based learning and dedicated mentorship, students are encouraged to develop **eco-friendly product alternatives** to common disposables [7]. One such innovation has been **edible cutlery** – utensils made from nutritious, edible materials that can replace single-use plastic cutlery [4]. This project not only reduces plastic waste but also adds value by making the cutlery safe to consume or compost after use. Other research has been channeled into renewable energy integration and clean manufacturing processes, reflecting UPES's technical strengths. Notably, UPES's research contributions in clean energy were recognized by the United Nations Development Programme, which enlisted the university for projects and capacity-building in renewable energy and sustainability [4]. The university's **Centre for Energy, Environment, and Sustainability Studies (CEESS)** further anchors research efforts by bringing together experts to work on sustainable development challenges and advising policymakers on sustainable resource management. Through CEESS and other research centers, UPES covers broad themes from climate change mitigation to sustainable industrial practices, ensuring that its research output directly supports SDG 12 and related goals.

Sustainability in Curriculum and Academic Programs

Sustainability is woven into the educational philosophy at UPES, ensuring that graduates carry forward the principles of responsible consumption and production. The university has **integrated sustainability principles across its curriculum**, embedding topics such as waste management, sustainable business practices, renewable energy, and life-cycle thinking into various disciplines [2]. Students of engineering, management, law, and design alike are exposed to concepts of sustainability and responsible production within their core courses or electives. For example, UPES offers courses and degree programs specifically related to environmental studies, climate science, renewable energy, and sustainability management, which equip students with the knowledge and skills to address resource efficiency and environmental challenges [7]. Assignments and projects often involve real-world sustainability problems – such as designing waste management plans or evaluating the sustainability of supply chains – to build practical understanding. By **incorporating SDG themes into coursework**, UPES ensures that awareness of sustainable consumption is not limited to a single program but is a common thread in the academic experience.

Several specialized academic programs underscore this commitment. In 2024, UPES, in collaboration with industry and academic partners, launched an **Executive Education program on ESG (Environmental, Social, and Governance), Sustainability, and Impact**. This Impact Specialist Program is designed to train the next generation of sustainability leaders (future "Chief Impact Officers") in steering organizations toward net-zero emissions, carbon neutrality, and circular economy practices [5]. Through a curriculum of case studies and expert-led sessions, participants learn how to balance financial goals with environmental and social impact – reflecting the interdisciplinary mindset needed for SDG 12. Moreover, the university's new **RISE Center (Research on Impact, Sustainability, and ESG)** serves as a hub for both research and education in sustainability. Under RISE, UPES offers not only academic courses but also management development programs on cutting-edge topics like *AI for sustainability* and green tech innovations [8]. This gives students and professionals opportunities to upskill in emerging areas of sustainable development.

Campus-wide initiatives further reinforce sustainability literacy. UPES regularly conducts **workshops, seminars, and guest lectures** on responsible consumption topics – ranging from seminars on circular economy business models to training sessions on energy auditing and waste reduction techniques.

The goal is to ensure that every student, regardless of major, graduates with a baseline understanding of sustainable practices and the urgency of SDG 12. The emphasis on experiential learning means students often work on projects like campus energy saving or community recycling drives as part of their curriculum. Through its **"School for Life"** curriculum component, UPES even allows students to design their own degree with a mix of courses, many of which can be sustainability-related, fostering a multidisciplinary approach to problem-solving [4]. By infusing sustainability into academics in these ways, UPES not only spreads awareness but actively builds the capacity of students to innovate and lead in responsible consumption and production in their future careers.

Student-Led Sustainability Projects and Entrepreneurship

UPES's students are at the heart of many sustainability initiatives, often taking the lead in projects and startups that reduce environmental impact. The university encourages student innovation through competitions, incubation support, and project-based courses, resulting in a range of **student-led projects focused on sustainable technology and resource efficiency**. Some flagship engineering projects emerging from UPES include a prototype **Electric Cycle** for green transportation, solar-powered devices like **solar dryers** for food preservation, and a unique **non-tracking solar "tree"** that can charge electronics via multiple USB ports and outlets [1]. Mechanical engineering students have built **biochar briquette systems** that convert agricultural waste biomass into clean-burning fuel briquettes, providing an alternative to wood charcoal [1]. Another team worked on a **flying electric car** concept, exploring efficient mobility solutions [1], while yet another addressed **water security** through smart monitoring of water resources [1]. These projects, often showcased at university tech fairs, highlight the creativity and technical skill students apply to sustainability challenges. Notably, they have developed a **"Waste Management" project prototype** for the campus, demonstrating improved methods to collect and process waste, which could be scaled to benefit the broader community [1].

Beyond class projects, UPES actively supports **student social entrepreneurship** in the sustainability domain. An inspiring example is the startup **"From And To Nature"**, co-founded by UPES alumni, which is revolutionizing the bottled water industry by producing **reusable bamboo water bottles** [2]. This green-tech startup was mentored under UPES's incubation program and addresses the plastic waste crisis by offering a 100% natural, biodegradable alternative to PET plastic bottles. The bamboo bottles are locally hand-crafted, food-grade, and coated with an inert lining for water safety [2]. The venture not only tackles single-use plastic pollution but also **empowers local artisan communities** by providing them employment in crafting the bottles [2]. Commended on multiple platforms for its sustainable mission, the startup has already attracted reputed hotels, cafés, and corporates as customers who prefer an eco-friendly packaging solution [2]. The founder credits the constant guidance of UPES mentors in helping transform this idea into a scalable business model, with the first large production run underway [2]. This is a prime example of how UPES students translate campus initiatives into entrepreneurial solutions that contribute to responsible production on a commercial scale.

Another notable initiative is **Project Vikalp**, a student-driven social enterprise under the university's wing, which **manufactures "woodless" pencils from recycled paper**. This project provides rural women with training to produce pencils and handicrafts using waste paper and local materials [4]. By replacing traditional wooden pencils with recycled paper ones, the project reduces the demand for wood (helping prevent deforestation) and cuts down paper waste, all while creating income for women in neighboring villages. Similarly, *Project Artisan* engages students and faculty with a remote

Himalayan community to blend tradition with sustainable production – women weavers in Ladakh are trained to create high-quality carpets on back-strap looms using renewable energy, thereby preserving cultural crafts in an eco-friendly way [4]. These student and faculty collaborations ensure that entrepreneurship at UPES often carries a triple bottom line: profit, people, and planet.

Student clubs and organizations also play a pivotal role. The **Green UPES Club** (often stylized as GreenUP) regularly organizes tree plantation drives, campus clean-up events, and sustainability awareness campaigns. In 2022, UPES students organized a four-day **Sustainability Fair** on campus to showcase innovative projects and ideas addressing pressing environmental problems [4]. The fair attracted participation from academia, industry, and government; in fact, the Honorable Governor of Uttarakhand visited to inaugurate the proceedings and **praised UPES for "stimulating the sustainable economy" through such student-led contributions to the SDGs [4]. This recognition underscores how UPES students are emerging as change-makers and thought leaders in responsible consumption and production. Through these myriad projects and entrepreneurial ventures, the student community at UPES is not only gaining practical experience but actively advancing sustainable development in the region.

Community Outreach and Promotion of Sustainable Habits

UPES extends its commitment to SDG 12 beyond the campus gates, actively engaging with the local community to promote sustainable habits and reduce consumption-driven impacts. A cornerstone of this outreach is **public awareness and education**. The university regularly conducts **awareness campaigns and workshops in surrounding communities** – including neighboring villages and schools – to discuss practical ways to adopt responsible consumption and waste management practices [2]. Students and faculty volunteers have led sessions on topics like household waste segregation, composting techniques for kitchen scraps, and the hazards of plastic pollution. These initiatives empower community members with information and simple action plans to reduce waste generation at the source and to handle waste in more sustainable ways (such as composting organics or participating in local recycling programs). By engaging the public in dialogue and demonstrations, UPES helps spread the culture of sustainability to the wider society.

One flagship community program is **Project Swachhata**, which aligns with India's national *Clean India Mission (Swachh Bharat Abhiyan)*. Under Project Swachhata, UPES volunteers carry out **regular clean-up drives in adjoining villages and public areas**, removing litter and improving sanitation in the community [4]. These sustained efforts not only beautify and clean the environment but also serve as a model to residents, encouraging them to maintain cleanliness and reduce littering. The involvement of students in cleaning their surrounding areas underscores the message that responsibility for waste does not end at the campus boundary – it is a shared community duty. Additionally, UPES teams up with local authorities at times for **tree plantation drives** on community lands and road-sides, enhancing green cover and promoting awareness about reforestation. Such drives often draw participation from both the university and the community members, fostering a joint sense of environmental stewardship [7].

UPES's outreach also addresses **reducing consumption through reuse and donation**. Since 2022, the university has participated in **DaanUtsav**, India's festival of giving, in partnership with the renowned NGO Goonj [5]. During this annual week-long event, UPES students and staff organize donation campaigns to collect gently used clothes, books, and other essential items from the campus

community. These items are then distributed to underprivileged groups in nearby areas – for example, winter clothing has been delivered to residents of a local slum and to an old age home (Cheshire Home) with the help of Goonj [5]. By encouraging students and employees to donate unused goods, the initiative **cultivates a mindset of reuse and reduces waste** that would result if such goods were simply discarded. The DaanUtsav drives have the dual benefit of helping those in need and reminding the university community about the value of extending the lifecycle of products. The strong participation in these donation drives each year has strengthened the ethos of empathy and social responsibility on campus, as noted by how actively students engage in planning and volunteering for the events [5].

Furthermore, UPES's mandatory **Social Internship program "Srijan"** ensures every first-year student contributes 6–8 weeks to working with a community-based organization [5]. With over 1,230 NGO partnerships in place, the university has facilitated more than 5,000 students in contributing an aggregate of **200,000+ human-hours** to community projects so far [5]. Many of these projects revolve around sustainable development, such as assisting in rural waste management initiatives, promoting energy-efficient cooking stoves in villages, or educating school children about environmental conservation. These internships act as a two-way outreach: communities benefit from youthful manpower and fresh ideas, while students gain on-the-ground perspective about the social dimensions of sustainability. The university's philosophy is that by integrating community development into the educational experience, students will carry forward a lifelong commitment to societal and environmental well-being [5]. In essence, through sustained community engagement – from cleaning campaigns and tree planting to education and donation drives – UPES amplifies its impact on responsible consumption and production, helping to **build a culture of sustainability in the region**.

Collaborations with Industry, NGOs, and Government for Sustainable Production

To magnify its impact and leverage wider expertise, UPES actively forges **partnerships with industry, non-profits, and government bodies** in pursuit of responsible production strategies. These collaborations bring external knowledge, resources, and scale to the university's initiatives while allowing UPES to contribute its academic and research strengths to broader sustainable development efforts. A prime example is the **groundbreaking partnership between UPES and Organic Recycling Systems (ORS) Limited**, established in February 2024. ORS is a leader in green technology and waste management solutions, and through a formal Memorandum of Understanding, UPES and ORS have committed to joint research in material science, sustainability engineering, and renewable energy [9]. This academia-industry alliance focuses on developing innovative solutions to complex environmental challenges – for instance, new methods for organic waste conversion and sustainable materials recycling. The collaboration includes **joint R&D projects, internship opportunities for UPES students at ORS, co-hosted conferences, and shared publications**, ensuring a rich exchange of expertise [9]. By pooling their collective knowledge and resources, UPES and ORS aim to pilot technologies that promote circular economy models and reduce the environmental footprint of production. Such a partnership underscores a pivotal strategy: combining academic research with real-world implementation capacity, thereby accelerating the translation of sustainable innovations into practice [9].

UPES also partners with **government and NGOs** to advance responsible consumption and production. The university's projects often support or supplement government sustainability missions. For

example, UPES's Project Artisan in Ladakh is done in partnership with local non-profit organizations and aligns with government objectives of promoting rural livelihoods and clean energy. In this project, UPES experts and NGO personnel **train women weavers in remote Ladakh** to produce traditional carpets using **affordable clean energy sources**, like solar-powered looms [4]. The initiative not only provides income opportunities without requiring migration to cities, but also ensures that the craft production is energy-efficient and the supply chain is locally sustainable. It exemplifies how UPES leverages academic expertise (in design and renewable energy) in collaboration with NGOs' grassroots reach to foster responsible production that respects both people and the planet. Similarly, *Project Vikalp* (woodless pencils from waste paper) and other social enterprises have come to fruition through partnerships with community organizations and support from local authorities, amplifying their impact beyond campus.

On the policy front, UPES contributes to governmental efforts by sharing research outputs and participating in sustainability forums. The university was a contributing organization in India's **Leopard Conservation Report 2018** (related to biodiversity), and its faculty regularly engage with government bodies on environmental management discussions [4]. While that example pertains to SDG 15, it reflects a broader trend of UPES advising on policy. In the realm of sustainable production, UPES faculty have joined task forces and workshops organized by government departments to address solid waste management and renewable energy adoption. The university's **alignment with national priorities** is evident – as India pushes for better waste management and resource efficiency, UPES's campus initiatives and research focus mirror this trajectory [2]. The institution emphasizes that its own sustainable campus practices (like waste reduction and green procurement) serve as a **microcosm supporting government policy goals in sustainable resource management** [2].

International collaborations further bolster UPES's impact. The university maintains academic tie-ups with 40+ foreign universities and over **600 NGOs globally** through its social internship program [4]. These networks facilitate knowledge exchange on best practices for sustainability. For instance, students and faculty have engaged in exchange programs to learn about waste recycling techniques in other countries, bringing back insights to implement at UPES. The strong network of **1,230 partner NGOs** also means UPES can rapidly mobilize or join multi-stakeholder projects aiming at SDG 12 targets. Whether it's a city-wide recycling campaign or a rural clean energy initiative, the university's collaborations enable it to contribute beyond its immediate campus. By "partnering for the goals" (SDG 17), UPES ensures that its efforts in responsible consumption and production are not isolated – they are part of a collective movement involving academia, industry, civil society, and government, thus multiplying the reach and effectiveness of each initiative.

Metrics, Outcomes, and Future Strategies

UPES rigorously tracks various metrics related to resource use and waste, using data to drive continuous improvement toward sustainability goals. These efforts have yielded measurable outcomes that underscore the university's progress on SDG 12. On waste management, the introduction of segregation and recycling systems is steadily increasing the campus waste diversion rate (the share of waste recycled or composted rather than landfilled). As noted, the target is to **halve landfill waste within two years** [3], and interim data show significant improvements in waste sorting compliance thanks to student and staff participation. The **Waste-Paper Recycling Lab** alone has processed a large volume of paper that would have added to solid waste – turning it into thousands of pencils and other products, all while empowering community women [4]. This demonstrates

tangible circularity: waste transformed into value. Meanwhile, the composting of organic waste means that dining hall scraps are no longer simply thrown out but returned to nourish the campus landscape, closing the nutrient loop. The success of these measures is evident in cleaner campus operations and heightened awareness; UPES has **institutionalized annual waste audits** to quantify improvements and identify further reduction opportunities.

In terms of resource efficiency, key performance indicators show strong results. The shift to LED lighting and solar water heating has notably cut electricity consumption and costs. The campus's **100 kW solar photovoltaic plant** now generates roughly *8% of UPES's total electricity needs* annually, reducing dependence on grid power and avoiding CO_2 emissions [4]. Ensuring a unity power factor has eliminated energy wastage in power distribution, contributing to additional savings [4]. Water conservation metrics are especially impressive: as a *zero-water-discharge* campus, UPES **recycles about 250,000 liters of wastewater daily** for reuse [4]. Combined with rainwater harvesting, this has decreased freshwater consumption dramatically – the university estimates an **89% reduction in freshwater withdrawal** compared to prior baselines, conserving precious water resources [4]. The removal of RO water purifiers (which were water-inefficient) has alone saved **30 million liters per year** that would have been wasted in filtration reject water [5]. This kind of data-driven decision – backed by water quality tests and cost-benefit analyses – exemplifies how UPES marries sustainability with operational efficiency.

Looking ahead, UPES has charted out an ambitious **sustainability roadmap** to further advance responsible consumption and production on campus. A major goal is to achieve a **carbon-neutral or Net Zero Campus by 2030**, meaning the university plans to reduce its carbon emissions to near zero and offset any remainder by that date [8]. To reach this milestone, several strategies are in motion: expansion of on-site renewable energy generation (more solar installations and exploring solar-wind hybrid systems), electrification of the campus vehicle fleet, and increased energy efficiency in buildings through smart sensors and green building retrofits. The university is also developing a **live "Green Dashboard"** – a digital platform displaying real-time data on energy usage, water consumption, and waste processing on campus [8]. This dashboard will enable transparent monitoring of progress toward targets (like Net Zero and waste reduction) and engage the campus community by visualizing the impact of their actions. In parallel, UPES plans to establish a **Sustainability Living Lab** in collaboration with partner institutions, which will serve as a testbed for new circular economy initiatives and sustainable technologies [8]. Research projects are planned on campus to pilot things like advanced composting techniques, plastic alternatives in cafeteria operations, and innovative recycling technologies – all feeding into operational adoption once proven.

Another future focus area is **sustainable procurement monitoring** – having implemented the policy, UPES intends to develop metrics for measuring the percentage of eco-friendly products purchased, local supplier share, and reduction in hazardous materials on campus. These indicators will help track how procurement choices are improving over time and guide adjustments to meet stricter sustainability criteria each year.

Finally, UPES recognizes that building a culture of responsible consumption is an ongoing journey. The institution is committed to **continual awareness and training programs** so that each incoming batch of students and new employees are oriented on sustainability practices from day one. The leadership at UPES has institutionalized sustainability in its governance – an **Institutional Sustainability Policy** ensures that every major decision or new project is evaluated for environmental impact and resource efficiency [5]. By doing so, sustainable thinking becomes a default part of campus planning and culture. In summary, through measurable actions and forward-looking strategies, UPES demonstrates comprehensive engagement with SDG 12. The university's efforts – from reducing daily waste

generation and greening its supply chain to innovating in labs and educating future leaders – collectively foster a **culture of responsible consumption and production**. These sustained endeavors not only contribute to national and global sustainability targets [2] but also prepare UPES to serve as a living model of sustainability in higher education for years to come.

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