



Trends in Higher Education

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Message from the Publisher

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As the global community looks ahead to COP28 - United Nations Climate Change Conference - in a couple of months, it is important that higher educational institutions take note of the developments in natural environment as they will have critical impact on their strategic and operational practices. This volume of Trends in Higher Education highlights some of the climate change mitigation actions taken within the higher education sector. It covers issues such as: student commitment to sustainability; measuring carbon footprint; water woes for campuses; renewable energy; and recycling management.

Happy reading of Volume 6 Issue 1 in this series.

Trends in Higher Education - Environmental Issues Impacting Higher Education

Introduction

This issue of Trends in Higher Education will highlight critical factors in the environment that education planners need to be aware of as they manage the strategic and operational affairs of their institutions. As the Bulletin is being written, the Caribbean has been confronting the effects of increased temperatures and humidity attributable to climate change over the last two months. This is expected to extend into 2024 with already documented impacts on the health and livelihoods of persons, food security, water scarcity and exacerbation pre-existing socio-economic challenges. The need to reduce emissions by over 40 percent by 2030 as articulated in the 2015 Paris Agreement thus becomes critical. Further, the effects of global warming will impact the achievement of the United Nations Sustainable Development Goals (UN SDGs) targets related to goals such as poverty, hunger, access to water, the terrestrial and marine ecosystems, infrastructure, and urban settlements. The bulletin is prepared with the principal concern of climate change mitigation efforts in mind as the 2023 United Nations Climate Change Conference (COP28) will be taking place in a couple of months. The University of the West Indies (UWI), which participates in the Times Higher Education (THE) University Impact Ranking, was ranked in the 201-300 band of 735 ranked universities for SDG13: Climate Action in 2023.

The issues raised here highlight some of the climate change mitigation actions taken by higher education institutions (HEIs). The topics addressed here include: human made

Inside This Issue:

- Human-Made Environmental Damage
- Student commitment to sustainability
- Measuring carbon footprint
- Water woes for campuses
- Renewable Energy
- Recycling management

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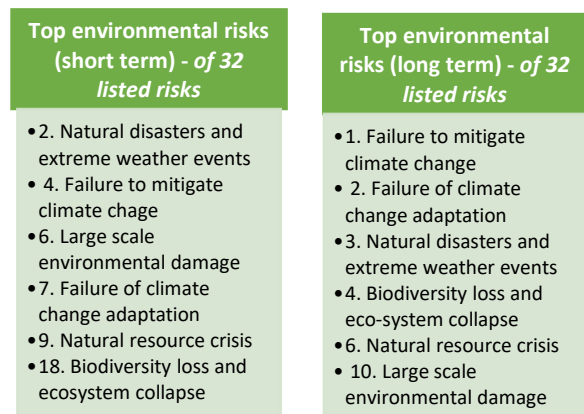
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environmental damage; student commitment to sustainability; measuring carbon footprint; water woes for campuses; renewable energy; and recycling management. These issues point to the overall need for campuses to develop a comprehensive sustainability (green) policy and implement definitive targets and monitoring mechanisms to reduce the carbon footprint.

Human-Made Environmental Damage

The *Global Risks Report 2023* provides insight into environmental risks, likelihood and impact based on the findings from the latest Global Risks Perception Survey.¹ Respondents identified natural disasters and extreme weather events, and failure to mitigate change among the top-five global risks identified by severity. These risks will affect countries, particularly low and middle-income countries, disproportionately. In addition, natural disasters and extreme weather events are identified among the top five risks for developing coastal states across Latin America, Africa, and South-East Asia. Over the next ten years environmental and climate risks form the core focus of the global risk perceptions, according to the respondents. Geopolitical and economic pressures as well as competing social and security issues have contributed to undervaluing the role of natural ecosystems in the global economy. See *Figure 1*.

Figure 1: Top environment risks - short and long term



Source: WEF, 2023.

¹ The Global Risks Perception Survey (GRPS) is the World Economic Forum's source of original risks data, harnessing the expertise of the Forum's extensive network of academic, business, government, civil society and thought leaders. Survey responses

Student commitment to sustainability

Students are increasingly aware of the state of the planet, and their role as custodians in protecting the same. This perspective tends to influence their choice of university and colleges. The Princeton Review College Hopes & Worries Survey, which gathers opinions of college applicants and their parents navigating the college application process, offers some insight into sustainability as a motivating factor. Most respondents (74%) in 2022 chose answers indicating that having information about a college's commitment to the environment (i.e., practices concerning energy use, recycling, or academic offerings) would contribute to their decision to apply to or attend the school compared to over two-thirds (67%) in 2023, a decline of seven percentage points. Nevertheless, the commitment to the environment remains high. See *Table 1*.

Table 1: 2022 and 2023 Results of If you (your child) had a way to compare colleges based on their commitment to the environment, how much would this contribute to your (your child's) decision to apply to or attend a school?

Year		Strongly	Very much	Somewhat	Not much	Not at all
2023	Total	8%	19%	40%	25%	8%
	Parents	6%	16%	39%	27%	12%
	Students	8%	20%	41%	24%	7%
2022	Total	11%	23%	40%	20%	6%
	Parents	9%	19%	38%	24%	10%
	Students	12%	25%	40%	19%	4%

Source: The Princeton Review College Hopes & Worries Survey, 2022, 2023.

Drawing on data from a poll by the charity, Student Mind, 53 percent of the students polled say they want to learn about sustainability in their curriculum while only 20 percent said already have (Williams (1)). Moreover, 20 percent said this prompted negative thoughts and behaviours afterwards. Consequently, the report recommended that where sustainability is taught as part of a curriculum, psychological well-being is also embedded.

were collected from 7 September to 5 October 2022 from the World Economic Forum's multistakeholder communities. See WEF 2023, Appendix A.

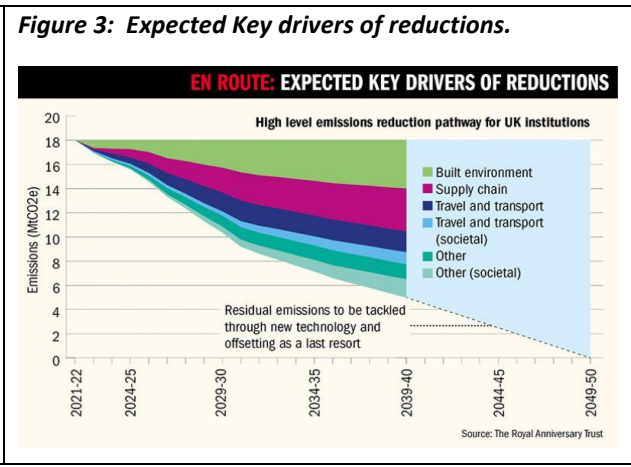
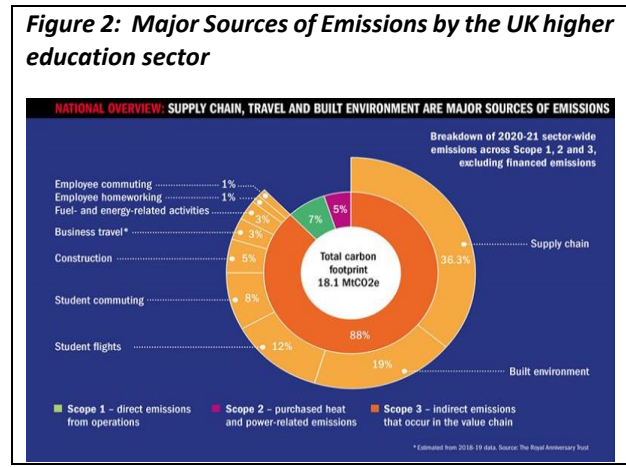
For universities capitalising on students’ interest in sustainability, it means highlighting or promoting achievements in campus sustainability or aligning the concept with institutional mission, vision, and core values. Some universities position their commitment to the environment as their primary value proposition when recruiting new students such as Sterling College in Vermont (SCUP Spring 2023). Others are introducing compulsory courses on climate change – at least five French universities were already teaching mandatory climate classes, which are typically credit-bearing and delivered online (Upton 2023). There is interest by universities in the Netherlands and Spain to introduce mandatory climate or integrate climate-relevant content into courses. In India, basic climate studies have been introduced as a requirement for all undergraduate programmes from this academic year.

Measuring carbon footprint

As set out in the Paris Agreement a target of net zero emissions is to be achieved by 2050. HEIs are well positioned to utilise their knowledge and influence to make societal and institutional differences. Universities can also align to national/state strategies on climate action. The

University of Georgia has developed several climate solution initiatives to contribute to the state’s Drawdown project by aligning their climate strategies to the five solution categories - Transportation, Electricity, Food and Agriculture, Buildings and Materials, and Land Sinks – and measures its progress in these areas. The university, for instance, has made steady progress in reducing carbon emissions since measurements began in 2010, with total emissions reductions from a 2010 baseline of 40% (UGA).

The UK Royal Anniversary Trust presented a challenge to a subset of HEIs to examine the sector’s own path to net zero. The subsequent report drew on data and best practices from over 530 higher and further education institutions. The footprint was created using reported emissions data from Estate Management Records for 2020/2021. The carbon footprint across Scope 1, 2 & 3² for the sector assessment was estimated to be 18.1 MtCO₂e (metric tons of carbon dioxide equivalent). In addition, the report identified a reduction roadmap, which sets out how improvements.



² Scope 1 covers direct emissions from owned or controlled sources. Scope 2 covers indirect emissions from the purchase and use of electricity, steam, heating, and cooling. By using the energy, an organisation is indirectly responsible for the release of these

GHG emissions. Scope 3 includes all other indirect emissions that occur in the upstream and downstream activities of an organisation.

Box 1: Examples of best practices in carbon reduction at UK HEIs

- Heriot-Watt University developed a Net Zero Community Hub that showcases the university's research and innovation through exhibitions, talks, demonstrations, and workshops, and aims to facilitate collaboration between stakeholders on achieving the net zero target.
- Brinsbury College has installed 640 solar panels to create a mini solar farm. The subsequent estimated savings in electricity charges over the 25-year lease period is £556,000. The farm is projected to produce 217,000 kWh per year and reduce the college's emissions by 65,000 kgCO₂e annually and provide 95% of the energy for use by the campus.
- The University of Oxford aims to reach net zero by 2035. To effectively address Scope 3 emissions, supplier the university conducted a detailed baseline review.
- Swansea University has developed nature-based solutions to increase biodiversity and landscape carbon sequestration on and off campus.
- Anglia Ruskin University has designed an online staff and student sustainability engagement platform called ARUgreen. It uses gamification levers like monthly challenges and rewards to encourage behaviour change around travel, recycling, carbon reduction, and purchasing, alongside health and wellbeing.

Source: The Royal Anniversary Trust 2023.

the built environment, supply chains and travel and transport could reduce emissions by 72 percent. *See Figure 2 and Figure 3 above.*

Of interest is that of 58 HEIs surveyed on the importance of a reporting framework, only one percent felt that reporting should remain voluntary. Conversely, 45 percent of respondents agreed that reporting should be mandatory, 42 percent felt that there should be clear directive on reporting with a further 12 percent saying that net zero carbon targets should be set for institutions (UK Anniversary Trust).

The report recommends the following actions for the sector:

- (i) Define the key internal skills that are needed to hasten the journey to net zero, and identify the key resources, policies, and standards that should govern implementation.
- (ii) Prioritise the adaptation of estates for climate resilience by developing a carbon reduction plan.
- (iii) Embrace more sustainable travel planning and policies and engage students and staff to encourage behaviour change.
- (iv) Identify a long-term investment approach to financing sustainability and the decarbonisation of its estates by working with stakeholders to identify ways to support green financing to deliver on the transition to net zero.

- (v) Creation of a carbon literacy and expertise scheme that encourages graduates to lend their expertise in sustainability to the sector for a limited time.

Water woes for campuses

Approximately two billion people worldwide do not have access to clean and safe drinking water, and 46 percent of the world's population lacks adequate sanitation services (SCUP Fall 2023). The availability of adequate water supply both in quality and quantity is essential and this is taken up by one of UN SDGs (SDG6). Water scarcity is a growing problem in many parts of the world, and conflicts and climate change are exacerbating the issue. A 2020 report on the state of Caribbean climate suggests that the "Caribbean as a whole will gradually dry through to the end of the century", which will negatively impact on country water reserves. Winters, Crisman and Dumke (2022), who looked at six Caribbean countries in their study of water requirements to meet human needs, concluded that several countries in the region will experience water shortages or water stress. Moreover, although Jamaica and Trinidad and Tobago have adequate available water; Antigua and Barbuda, Barbados and St Kitts and Nevis were in the absolute water scarcity category; and St. Vincent and the Grenadines was within the water scarcity category.

Challenges relating to water stresses will impact the higher education sector with some countries

already experiencing the effect on their sector. In India water scarcity led to some colleges (e.g., The University College, Hampankatta) to switch to online mode or change class timings in April (Mendonsa 2023). Similarly in the United States, Jackson State University was affected by a lack of reliable tap water service and was forced to cancel in-person classes and schedule online classes in early September. In addition, the university rented portable showers and toilets which they set up across the campus and water was being delivered to students (Tucker 2022). At Universiti Malaysia Sabah (UMS), where there is water shortage on the campus due to water rationing that is expected to last until 2024, the campus monitors daily water levels and sources external water tanks at the college dorm locations. The university is also looking at alternative water sources within the campus such as building a piping system to get water sourced from the hills that could provide 80,000 litre per day and channelling water via 'tube wells' (Inus 2023).

Given the water challenges likely to impact HEIs the development of metrics to support water monitoring via frequent meter readings, assessing the water footprint on campuses and engaging researchers to identify efforts to address water scarcity issues (SCUP Fall 2023) are some strategies worth considering. Imperial College London, for instance, has developed a water policy which will seek to mitigate climate change and reduce water consumption.

Renewable Energy

HEIs are large energy users, a result of the large and diverse operations for teaching, research activities or for maintaining such facilities as laboratories and data centres. This means that universities have a corresponding high energy bill. For example, the national association of French universities estimated additional costs of €100 million (US\$105 million) for the sector in 2022, a figure which may be much higher in 2023. Colleges and universities in the United States use 18.8 kWh of electricity and 17 cubic feet of natural gas per square foot every year

which adds up to more than \$100,000 in energy spending on average (Newton 2022). Price hikes are now weighing heavily on university budgets leading universities in Europe to considering measures such as lowering heating in buildings and reducing opening hours, to longer campus closures in winter, and a return to fully online tuition (Privot and Kupriyanova 2022). Latvian universities, for example, have chosen to intensify the study process and accommodate as many lectures, labs, and research activities as possible within the period.

Addressing the issue of clean and affordable energy features among the UN SDGs to *inter alia* increase investments in renewable energy sources and invest in improving electricity grids (SDG7). HEIs are thus well-placed to create the infrastructure to generate renewable energy on-campus by way of solar panels and wind turbines. International Energy Agency (2023) notes that renewable power growth is rising with “global renewable capacity additions set to soar by 107 gigawatts (GW), the largest absolute increase ever, to more than 440 GW in 2023.” This growth is driven by expanding policy support, growing concerns on energy security, and improvements in the competitiveness of fossil fuel alternatives.

SCUP (Fall 2023) suggests that HEIs assess efforts to use renewable energy at their institutions. In this regard, data from the US Environmental Protection Agency (EPA) which looks at the green power used by universities and colleges is instructive as it highlights some of the work ongoing at US colleges and universities. The EPA announced in July 2023 that the combined annual green power use of its Top 30 College & University Partners amounts to nearly 4.2 billion kilowatt-hours of green power, which is equivalent to the annual electricity use of nearly 393,000 average American homes. The University of California, which is EPA’s top college and university partner, annual green power usage is 469,688,560 kWh, which represents 43 percent of its total electricity use. Each UC campus has installed on-site renewable

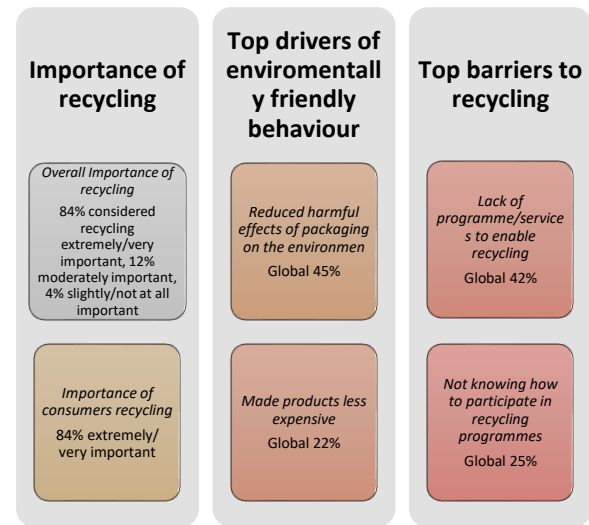
generation including biogas, electric solar energy, and solar thermal energy. The 50+ megawatts of on-campus solar systems produced more than 78,000,000 kWh in 2022. In addition, the university entered into long-term power purchase agreements for energy from two California grid-connected solar resources totalling 80 MW (US EPA). Conversely, the University of Illinois at Urbana-Champaign (the 30th EPA partner) consumes 13 percent green power (or 52,345,581 kWh) of total electricity use. The university installed a solar farm that produced 20,000 MWh/year which complemented roof-top and ground-mounted solar installations thus, enabling the university to produce on-site clean power.

Recycling management

It is not easy being green according to SCUP (Fall 2023). A joint global survey conducted by the World Economic Forum, SAP, and Qualtrics in Fall 2021 on attitudes towards climate change and sustainability including attitudes towards recycling.³ The data in *Figure 4* is important in the context of understanding the sub-populations that are on campuses and how to pitch or develop waste reduction or recycling strategies.

³ There were 11,686 global responses collected across 28 countries in the Fall 2021 70% of respondents (n=8,215) represented perspectives of general consumers, while the remaining 30% of the audience reflected perceptions of corporate respondents

Figure 4: Interest in recycling - global



Source: WEF 2021.

The Campus Race to Zero Waste is a university and college waste and recycling programme in the United States and Canada. Three examples of initiatives at universities in the United States are offered below.

- (i) The University of Nebraska-Lincoln focused on recycling efforts on campus to reduce waste and improve recycling by standardising containers and aligning collection processes by having centralised waste management. The campus saw a decrease in overall landfill waste being generated on campus and fewer recyclables being incorrectly placed into the landfill stream gains in recycling efforts.
- (ii) The University of South Florida established benchmarks to measure outgoing waste, identified the challenges and opportunities for diversion and reduction, and created awareness campaigns to improve recycling and reduce contamination. Their reverse vending machine (RVM) raises up to \$5,000 dollars per year for the pantry to provide food for food insecure students. They also created a competitive campaign between rival college campuses supports sustainable

(n=3,471). All respondents were between 18 and 90 years old • Corporate respondents work 40+ hours per week for for-profit companies.

- materials management and raised money for a cause that directly benefits students.
- (iii) The University of Georgia, which sends about ten million pounds of materials to the landfill, has developed a set of guidelines to help students and staff understand what materials can be reduced, reused, recycled, and composted.

Drawing on those experiences, HEIs can interrogate their rate of recycling through waste audits, set goals and targets for waste reduction, identify the barriers to recycling, and educate internal stakeholders about recycling (SCUP Fall 2023).

Conclusion

Sustainability continues to be an added value proposition for HEIs if they can demonstrate environmentally-sound practices. Several SDGs highlight the interconnectedness between the environment and the achievement and maintenance of peace and prosperity for people globally. HEIs have the potential to be a living laboratory to solve environmental challenges by utilising existing resources to improve operational effectiveness, efficiency, and sustainability. In addition, universities could develop and implement sustainability policies, monitor their effect, and produce public sustainability reports. Further, HEIs including The UWI can utilise the data from the THE University Impact Rankings to inform and drive their sustainability practices and activities; in particular, its carbon use and its commitment to a carbon neutral university that drives core business practices.

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UWI "Triple A" Strategic Plan:

Did you know the theme for the UWI "Triple A" Strategic Plan Phase II is **Revenue Revolution?**

To learn more about the Plan, click on the following link <http://www.uwi.edu/uop/strategic-plan-about-plan>