THE UNIVERSITY OF THE WEST INDIES

Trends in Higher Education

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Message from the Publisher

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As we enter the third year of the global pandemic, higher education institutions, including The University of the West Indies, continue to be challenged by issues exasperated by the pandemic. Education as we know it has changed considerably and we are now required to be flexible in our offerings and service delivery to our students and stakeholders.

This issue of Trends in Higher Education touches on some key hot- button issues relating to sustainable environmental practices, which Higher Education Institutions (HEIs) should consider in delivering services to its stakeholders, in a post-pandemic world.

In this context, the publication focuses on issues pertaining to man-made environmental damage as a result of global warming and some of the solutions to curtail the deleterious effects on the environment. These include reducing carbon emissions and redesigning teaching and learning spaces to deal with rising temperatures and for optimum space utilisation.

It also provides valuable lessons from other international tertiary level institutions that have implemented policies and programmes, to cope with the new rules for service delivery in a pandemic. Planners in HEIs can adapt these lessons to their own strategic and operational management practices.

I invite you to peruse the pages of this volume of Trends in Higher Education since it provides enriching and valuable information on the environmental issues of significance today in the higher education sector.

I also want to wish all our readers a warm welcome back and a very Happy New Year. Enjoy!!!

Trends in Higher Education - Environmental Challenges for HEIs in the Post-pandemic Periods

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. The bulletin is prepared against the backdrop of:

(i) the conclusion of the 2021 United Nations Climate Change Conference (COP26) where there was agreement inter alia for concerted efforts to build resilience to climate change, curb greenhouse gas emissions and provide the necessary finance for both.

(ii) the ongoing effects of COVID-19 pandemic and implications it has for physical planning.

(iii) 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 566 ranked universities for SDG13: Climate Action.

The issues for HEIs to consider in this new operational environment are:

- human made environmental damage (improvement in their carbon footprint),
- introduce sustainability measures while preparing to address air quality,
- the effects of increased temperatures, and water challenges.

Additionally, given the presence of infectious diseases, HEIs will have to adapt their physical setting to mitigate spread and, the lingering effects of the changes in work and learning patterns that arose from the COVID-19 pandemic.

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Man-Made Environmental Damage

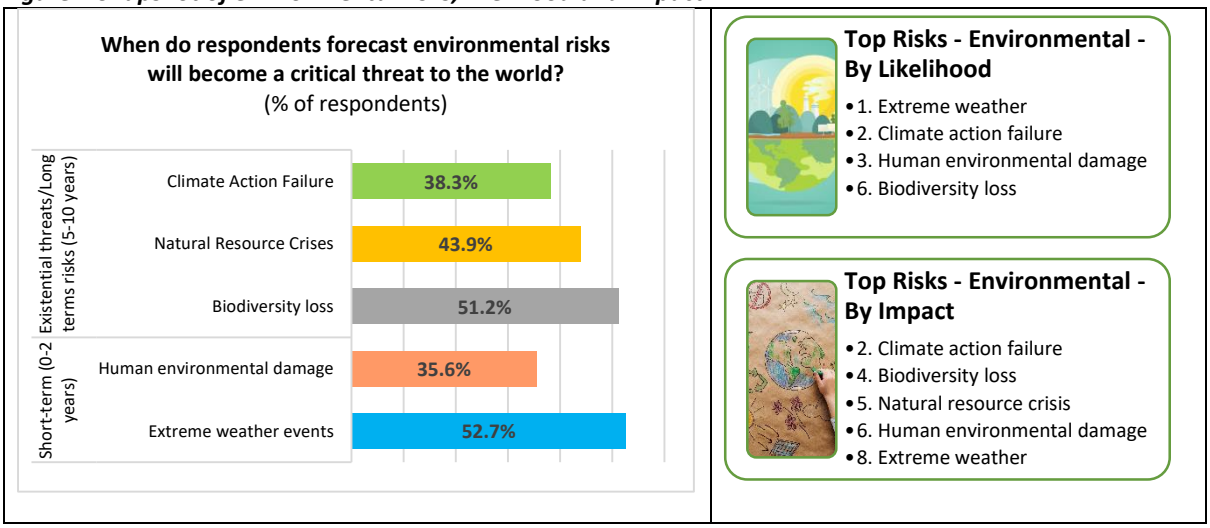
The *Global Risks Report 2021* provides insight into environmental risks, likelihood and impact based on the findings from the latest Global Risks Perception Survey.[1] The key findings highlight that among the highest likelihood risks over the next ten years are: extreme weather, climate action failure and human-led environmental damage (WEF 2021). When it comes to the time-horizon within which these risks become critical, the findings show that human-made environmental damage is most likely in the next two years. Within a 5–10-year horizon, biodiversity loss, natural resource crises and climate action failure dominate as environmental risks (WEF 2021). *See Figure 1.*

Reducing carbon emissions

As large organisations, HEIs have a significant carbon footprint and conversely, can have a positive impact by transitioning to net zero emissions[2] (one of the goals of COP26). Sustainability seems to be a big concern for university leaders, with 80% of respondents to a *THE* survey[3] saying pursuit of the SDGs informs how their institution operates, although just 7% list environmental sustainability as among their three highest priorities (THE 2021). In addition, respondents cite energy-efficient buildings (79%), followed by a zero-carbon or carbon neutral commitment[4] (57%) and a plastic-free campus (34%) and 25% believe that sustainable travel policies are among the most important goals for their university in relation to environmental sustainability and the climate crisis.

Universities pledged their commitment to climate change action ahead of the COP26. More than 1,000 universities from 68 countries with some 10 million students had pledged to halve their emissions by 2030 and reach net-zero by 2050 at the latest. Among them are 334 institutions from the United States, 216 from India and 125 from the United Kingdom (Mc Gregor 2021). This underscores the critical role HEIs can play in driving climate action.

Figure 1 Snapshot of environmental risks, likelihood and impact



Source: WEF 2021.

[1] The Global Risks Perception Survey (GRPS) is the World Economic Forum's source of original risks data. It draws on the expertise of the Forum's network of business, government, civil society and thought leaders. Survey responses were collected from 8 September to 23 October 2020.

[2] Net zero emissions: a state in which the greenhouse gases going into the atmosphere are balanced by the removal of greenhouse gases out of the atmosphere (THE 2021).

[3] The findings are based on a *Times Higher Education* survey of 180 university leaders from 43 territories across six continents, conducted in June 2021.

[4] Zero carbon: no carbon dioxide emissions (across all scopes). No use of offsets or balancing of residual emissions with removals. Carbon neutral: a state in which the amount of carbon dioxide entering the atmosphere is balanced by the removal of CO2 from the atmosphere. (THE 2021)

Disease pandemic and changing work conditions

The COVID-19 pandemic spotlighted challenges of air quality and poor ventilation in confined and enclosed spaces (such as offices). Certain settings have been identified as contributing to the spread of SARS-CoV-2. As such, there has been a renewed interest in indoor air quality and ventilation - HVAC (heating, ventilation, and air conditioning). Modifications to poor airflow and ventilation include ways to bring as much outdoor air into a building as possible, and filter or treat that air more than currently done to dilute contaminants and particulates. Pragmatically, it requires facilities managers to assess HVAC systems within each building on campus taking into consideration system capacity to handle outdoor air and the added pressure caused by high-rated filters. Rogers (2020) urges the use of a metric called the air exchange rate—how often new air from outside replaces old air inside – to reduce potential (Rogers 2020).

Space utilisation

The pandemic prompted a wave of experimentation in the use of space for gathering, study, classes, and socialising. A rethink of overall building design may be required based on sustainability and health and wellness settings to allow for spacious, well-ventilated settings. According to Felix (2021), campuses are in a state of flux and 60% of the nearly 90 institutions in Campus Facilities Inventory Survey are planning to do a campus master plan in the next year.

It is expected that campuses will have to be repurposed to take into consideration more remote and hybrid work creating flexible administrative and faculty workplaces with shared/unassigned seating and hybrid meeting spaces. Also, with the move to more online or hybrid learning there will be more emphasis on flexible spaces (e.g., Imperial College lecture theatre transformations[5]). HEIs may also create living/learning environments via more multifunctional lobbies, project spaces and creative hubs as well as activated outdoor areas that supports wellness initiatives and allows institutions to more utilise their space.

Outdoor spaces might be become popular requiring HEIs to also consider the use of outdoor spaces in master (physical) planning. This may be especially so where continuing safety protocols related to crowd control and behaviour-based precautions exist.

During the pandemic, HEIs in the United States expanded their use of outdoor space to sustain teaching and learning. For example, Rice University built four semipermanent, Quonset hut-like classrooms and five open-air tents, and Virginia Tech spent $250,000 on tents, Wi-Fi, lighting, and furniture in outdoor spaces (SCUP Spring 2021). The University of Notre Dame created a “library lawn” with lights, seating, and fireplaces. However, as colleges and universities create functional outdoor spaces, they must also keep accessibility in mind, so they are inclusive of students with disabilities.

Designing to deal with rising temperatures

The effects of high temperatures on buildings and structures demonstrate the need for new infrastructure standards to be more resilient to frequent heat waves. Buildings, especially critical ones like health clinics and cooling centres, may need to add solar microgrids to ensure they have access to power and air conditioning to keep them operable in the face of blackouts. Peters (2021) notes that cities will have to make changes to adapt to warming summers, such as planting more trees or giving homeowners incentives to add white roof coatings that can reflect heat to help somewhat reduce urban temperatures.

To help curb global warming, researchers at Purdue University have invented a version of white paint that may one day reduce the need

[5] See MacKay 2019.

for air conditioning. Typical commercial white paint gets warmer rather than cooler – they reflect only 80%-90% of sunlight and cannot make surfaces cooler than their surroundings (Wiles 2021). The new ultra-white paint reflects up to 98.1% of sunlight while also redirecting infrared heat away from a given surface - covering a 1,000-square-foot roof with this paint could "get a cooling power of 10 kilowatts" (Wiles 2021). [6]

SCUP (Fall 2021) advocated that HEIs become more aware of how global warming will affect our institution's physical plant and the challenges to operate in an increasingly warmer natural environment. Consequently, HEIs will have to become more intentional in adopting new building and maintenance materials and practices such as the ultra-white paint and pavement rejuvenators discussed above to trim its energy uses and costs.

Sustainability is the new competitive advantage

Within the business world, there is a growing recognition that profits require a functioning planet and society. Corporations are addressing sustainability with many being signatories to the UN Global Compact and supporting the SDGs. Despite such, there is still a separation of sustainability and societal challenges from core business operations for efficiencies and optimisation. However, a more deliberate approach to integrating sustainability into overall business strategy is required.

- The Boston Consulting Group advocates for the use of the "Sustainable Business Model Innovation" (SBM-I), which supports businesses to rethink the cooperate strategy by "creating new modes of differentiation, embedding societal value into products and services, reimagining business models for sustainability, managing to new measures of performance, and reshaping business ecosystems to support these initiatives" (Young and Reeves 2020).

- Companies are adopting Environmental, Social, and Governance (ESG) ratings as part of their corporate culture to create value and competitive differentiation. This is likely to result in improved financial and stock performance; improved access to debt; lower cost of capital; and greater transparency, trust and brand value with all stakeholders (Bryant and Long 2021).

HEIs, according to SCUP (Fall 2021), can determine its competitive advantage in sustainability, incorporate sustainability in its business model by linking sustainability practices to our overall mission and business operations. Additionally, institutions can consider measuring its investments against ESG standards or obtaining ESG designations for them.

Enhancing adoption of sustainable energy

The climate challenges are driving the adoption and use of low-carbon sources of energy (also relevant to SDG#7). Typically, the most common options for producing low-carbon energy are wind and solar power. Despite improvements in clean technologies like solar panels, wind turbines, and batteries, Koen and Antunez (2020) note that there are still concerns with performance related to fluctuating sources. However, new, next-generation technologies such as marine solar, molten salt reactors, dynamic export cables, and pumped thermal electricity storage are starting to emerge.[7] SCUP (Fall 2020) also highlights the prioritisation of renewable hydrogen (green hydrogen) generated from renewable sources such as solar

[6] The paint's whiteness also means that the paint is the coolest on record. Using high-accuracy temperature reading equipment (or thermocouples), the researchers demonstrated outdoors that the paint can keep surfaces 19 ^{o}F (-7.2^{o}C) cooler than their ambient surroundings at night. It can also cool surfaces 8^{o}F below their surroundings under strong sunlight during noon hours (-13.3^{o}C).

[7] "Marine solar" is based on offshore floating solar farms. "Molten salt reactors" could offer a lower-radiation alternative to nuclear reactors based on solid fuel. "Dynamic export cables" could significantly improve the amount of energy collected from wind turbines floating in the ocean. "Pumped thermal electricity storage" could work well for large-scale storage of renewable energy. See SCUP Fall 2020.

or wind without producing carbon emissions as a cornerstone of Europe's plan to transition to green energy.

Over 40% of HEIs submitted data on SDG#7 for the *2022 THE University Impact Rankings* found that King Mongkut's University of Technology (Thailand), which was the highest ranked HEI for SDG#7 clean and affordable energy, focussed their research activities on energy use and policies, and commitment to promoting energy efficiency (THE 2021). HEIs will; therefore, need to look at what alternative energy sources would be relevant to fulfilling an institution's energy needs.

Conclusion

Sustainability will be the new competitive advantage for HEIs as the world moves to more environmentally sound practices for doing business. HEIs including The UWI can utilise the data from the *THE University Impact Rankings* to inform and drive their sustainability practices and activities. Opportunities exist for HEIs as a result of the lingering momentum of COP26 to effectively promote sustainable development practices throughout its campuses by developing a sustainability strategy, setting targets for carbon emissions, and incorporating sustainability practices in core business practices. It also advantageous to universities to consider developing sustainability reports that identifies activities in line with their tri-mission that contributes to environmental sustainability. Importantly, the continuing effects of the COVID-19 pandemic provides the platform for institutions to relook at some of their practices and bring them in-line with environmentally friendly ways of delivering service to their clients.

References

Balgeman, Stephanie, Ben Meigs, Stephan Mohr, Arvid Niemoller, and Paolo Spranzi, "Can HVAC Systems Help Prevent Transmission of CO VID -19?," McKinsey. July 9, 2020. Can HVAC guidance help prevent transmission of COVID-19? | McKinsey.

Bryant, Peter and Jessica Long, "Companies Need to Take a Clean Sheet Approach to ESG," *Chief Executive Magazine*, March 18, 2021. Companies Need To Take A Clean Sheet Approach To ESG (chiefexecutive.net).

Felix, Elliot. "Space Changes on the Post-Pandemic Campus," *brightspot.* June 24, 2021, www.brightspotstrategy.com/space-changes-on-the-post-pandemic-campus.

Koen, Antoine and Pau Farres Antunez, "How Heat Can Be Used to Store Renewable Energy," *The Conversation*, February 25, 2020. How heat can be used to store renewable energy (theconversation.com).

MacGregor, Karen. "Universities pledge commitment to climate change action." *University World News.* 13 November 2021. https://www.universityworldnews.com/post.php?story=20211113051642287.

MacKay, Murray. "Lecture theatre transformation enables diverse forms of teaching at Imperial." 31 October 2019. Lecture theatre transformation enables diverse forms of teaching at Imperial | Imperial News | Imperial College London.

Ofgang, Erik. "How Ventilation Systems Are Being Upgraded for Back to School," *Tech & Learning University*, July 10, 2020. How Ventilation Systems are Being Upgraded for Back to School | Tech & Learning (techlearning.com).

Peters, Adele. "Extreme Heat Is Becoming More Frequent—and Our Infrastructure Is Going to Need to Adapt," *Fast Company*, July 2, 2021. Extreme heat is becoming more frequent—and our infrastructure is going (fastcompany.com).

Rogers, Adam. "The Next Covid Dilemma: How to Make Buildings Breathe Better," *Wired*, November 9, 2020. https://www.wired.com/story/the-next-covid-dilemma-how-to-make-buildings-breathe-better/.

Society for College and University Planning. *Trends for Higher Education – Trends Outside Higher Education*. SCUP. Fall 2021.

Society for College and University Planning. *Trends for Higher Education – Trends Inside Higher Education*. SCUP. Spring 2021.

Society for College and University Planning. *Trends for Higher Education – Trends Outside Higher Education*. SCUP. Fall 2020.

Times Higher Education. *The Race To Net Zero How Global Universities Are Performing.* THE, October 2021.

Wiles, Kayla. "The Whitest Paint Is Here—And It's the Coolest. Literally," *Purdue University*, April 15, 2021. The whitest paint is here – and it's the coolest. Literally. - Content Hub (purdue.edu).

World Economic Forum. *The Global risks report 2021 Insight Report.* 16th Edition. In partnership with Marsh McLennan, SK Group and Zurich Insurance Group. 2021. http://wef.ch/risks2021.

Young, David and Martin Reeves, "The Quest for Sustainable Business Model Innovation," Boston Consulting Group, March 10, 2020. https://www.bcg.com/publications/2020/quest-sustainable-business-model-innovation.

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