University of Hertfordshire

Environment and Sustainability

Annual Report

2020 - 2021

University of
Hertfordshire **UH**

CONTENTS

Welcome to the University of Hertfordshire Environment and Sustainability Report 2020-21. The reporting period runs from 1 August 2020 to 31 July 2021 and after what has continued to be a challenging year for everyone, we are pleased to report on so many positive initiatives across the University. While the effective management of our risks and compliance obligations remained a priority, the challenges presented by Covid-19 meant we were able to take a more strategic approach, with a focus on people, education, and planning for the longer term. Despite a year of uncertainty, we have met challenges, realised opportunities, and learnt from our new normal.

While the pandemic stalled the progress of the global sustainability agenda somewhat, it did help re-connect people with nature, and highlighted the bond between environmental and social considerations in the context of health and wellbeing. With sustainability increasingly being adopted as a more integrated approach towards a healthy people and planet, the Sustainable Development Goals[1] continued to gain support as a framework for holistic action. As we started to emerge from the pandemic, opportunities to level up and build back better also gained momentum, with green skills and the provision of sustainable jobs being identified as key drivers for a green recovery.

Putting the pandemic aside for a moment, the climate crisis continued to dominate sustainability agendas across the world. The Intergovernmental Panel on Climate change (IPCC) as busy finalising part one of the Sixth Assessment Report; Climate Change 2021: The Physical Science Basis ahead of COP26, which was due to take place in Glasgow in 2020 but was eventually postponed to 2021 due to the pandemic. At the same time, the UK also made several national commitments to bring environmental sustainability back to the table. The Environment Bill, which was hailed as a key driver of the 25 Year Environment Plan, started its journey through parliament with the view to become act. The bill, which represented a "step-change in environmental protection and recovery", was introduced to tackle biodiversity loss, climate change, and environmental risks to public health. During this period, the government also started setting out its strategic plan for how it would meet the revised Climate Change Act commitment of reaching Net Zero by 2050 and cutting emissions by 78% by 2035. A new report on Biodiversity was also published, highlighting the need for systemic and transformative change in how we think, act and measure success in order to avoid catastrophic environmental collapse.

Environment and Sustainability work in the Higher Education sector however, remained significantly shaped by the pandemic during this time. While the role of universities in building a sustainable future remained acknowledged, the pandemic meant that competing priorities and limited opportunities and resources made aligning corporate ambitions with national commitments relatively challenging[2]. Concurrently, however, the link between environment and wellbeing in the context of education and university life was also highlighted, thereby offering opportunities to adopt a more holistic approach to sustainable development, and for stronger cross-department collaboration.

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[1] See Appendix 1

[2] Crawford, J.; Cifuentes-Faura, J. (2022) Sustainability in Higher Education during the COVID-19 Pandemic: A Systematic Review.

Life at UH was impacted by Covid much the same as elsewhere in the sector and the country. While the period saw an increase in waste from of single use items, and engagement opportunities were understandably curtailed, there were also environmental benefits to be had from working and studying remotely, such as a reduction in overall waste, fewer cars, the rewilding of natural spaces, and a decreased demand for energy. As the university moved towards a more hybrid working model at the beginning of 2021 however, many of these benefits were diminished, and in some cases even reversed as the need for ventilation, single-occupancy car journeys, and the demand for single-use items all increased.

Despite these challenges, however, we were still able deliver on our Environmental Policy commitments, and progress our Environment and Sustainability (E&S) ambitions. Our Environmental Management System (EMS) remained a priority, and we worked hard to not only meet our compliance obligations, but to also have a wider positive impact through a range of engagement, development, and education opportunities. Furthermore, we continued to incorporate the Sustainable Development Goals into more of our aims and objectives, and embed our sustainability agenda holistically across the university. Some of our main achievements and successes are summarised below:

KEY ACHIEVEMENTS & SUCCESSES

1. Total waste output reduction of 30% compared to 2019-20
2. Scope 1 & 2 emission reduction of 11% compared to the previous reporting period
3. Board KPI on carbon reduction and commitment to Net Zero
4. A 44% reduction in water consumption per m3/person
5. £14m of refurbishment projects adopting, where possible, a 'fabric first' approach to reduce Scope 2 & 3 emissions.
6. Biodiversity: launched Hedgehog Friendly campus
7. Biodiversity: Published the Biodiversity Action Plan
8. Community: Successful community allotment campaign to help with health, wellbeing and sustainability during the pandemic
9. ISO14001 recertification: Best Practice and Industry Leading practices. Zero minor or major non-conformances identified in the last 2 years
10. Empowering students – volunteer role with Environmental Management Masters programme
11. Completion of Internship programme
12. Education: Carbon Literacy
13. Wild Connections: Green Gown Award finalists for the Windowsill Series

PROGRESS TO DATE

The university's environment and sustainability commitments are managed and reported on through our EMS, and in 2020 – 21 our legal obligations were effectively monitored and maintained according to our procedures and terms of reference. Looking beyond legal compliance, ambitious targets were set across all impact areas as part of our drive for continual improvement. In 2020-21, there were 26 Environmental targets associated with 14 objectives, of which 15 targets were achieved and 8 are ongoing, on track to be achieved by their scheduled date. Only 4 targets remain outstanding after being indefinitely postponed either due to Covid or a lack of resources.

Impact Area	Aim	Position 20/21	Current Progress
Energy and Carbon	Reducing the University's negative impact on climate change through the implementation of projects within its evolving Carbon Management Plan.	5 objectives: 1 achieved 4 ongoing	With a board KPI to reduce emissions year on year and a commitment to reach Net Zero by 2050, energy and carbon is a key priority for UH. While we have a good process for calculating scope 1, 2 and some scope 3 emissions, we will be looking to develop the decarbonisation strategic plan for the estate, which will include looking at opportunities to increase the use of renewable energy on site. Reductions in emissions have been observed, but these have largely been as a result of the grid becoming greener, and reduced demand from Covid. Scope 1 & 2 emissions, including vehicle diesel from UNO Bus, fell by 11% compared to the previous reporting period.
Waste	Reducing University waste production and promoting resource efficiency	3 objectives: 2 completed 1 ongoing	Despite a rise in single use and PPE waste, we have been making good progress in all areas of our waste and resource management. Total waste output decreased by 30% from 503 tonnes in 2019 – 2020 to 350 tonnes in 2020 – 2021. Recycling and landfill rates remained stable at 70% and 2% respectively.
Transport	Encouraging reduced dependency on single occupancy car travel to and from the University and between sites	1 objective still ongoing	As a result of the pandemic, we were unable to carry out a meaningful survey in this period. Data collected from car parking facilities, however, indicated that travel into De Havilland and College Lane was reduced by around 65% during this period.
Water	Preventing pollution by managing and reducing emissions to air and discharges to water and managing and reducing water consumption	1 objective achieved	We are making good progress with our water objectives. Water consumption decreased significantly over this period, from 16m^3/person in 2019-20 to 9m^3/person in 2020-21, representing a 44% reduction. This was largely due to extensive leak detection and rectification works completed at the College Lane Campus.
Construction	Taking account of Sustainable Construction Principles in University new builds through the incorporation of such principles throughout project life-cycle	1 objective, still outstanding	Our objective pertaining to this aim was to understand the principles of net gain in the context of construction. As the team focused on other matters, this objective remains outstanding. We do, however, still commit to BREEAM excellent for any new builds, and will be a target for the new SPECS building.
Procurement	Reducing the environmental impact of the University's procurement processes and supporting responsible procurement	3 objectives: 2 achieved 1 ongoing	While we have made good progress with the review of the Procurement Sustainability Policy and guidance on HertsHub, we still need to deliver training on sustainable supply chains and the Sustainable Development Goals to the team to support the implementation of the policy in practice.
Engagement	Increase awareness across Staff and Students on the University approach to the SDGs and the Environment and Sustainability across the UH campuses	6 objectives: 5 achieved 1 postponed	We made excellent progress with our Engagement programme this year. Our engagement coordinator set up a staff network, worked with wellbeing champions and the Green Team to launch the Windowsill series. 5 students also completed a 3-week internship programme in 2020, and a volunteer student from the MSc in Environmental Management was also brought in to support the team in 2021. The Bayfordbury festival was postponed due to Covid.

Biodiversity	To have biodiversity Net Gain on the College Lane and DeHavilland	4 objectives: 2 achieved 2 postponed	We have made good progress on our Biodiversity objectives. A new Biodiversity Action Plan was published, and we launched the Hedgehog friendly campus campaign. Many of our engagement initiatives also focused on Biodiversity, helping our community connect with our natural spaces and our sustainability agenda.
Compliance	Ensuring that the University's compliance obligations with all relevant environmental legislation, regulations and other requirements are met.	2 objectives: 1 achieved 1 ongoing	Our compliance obligations were all met as verified by through our internal and external auditing process. The objectives relating to compliance for this period focused on F-Gases. The transfer of F-Gas records to online portal from historical excel document was completed, while training on F-gases for key individuals is still ongoing.

REDUCING OUR IMPACT ON THE ENVIRONMENT

As a university there are several areas where our activities and infrastructure can have a negative impact on the local and wider environment which would lead to biodiversity loss, resource depletion, and climate change. It is therefore a key priority that we recognise these impacts and put plans in place to mitigate them wherever possible.

CLIMATE CHANGE

In order to reduce our impact on the climate, we must reduce, and ideally stop emitting greenhouse gases altogether. While most of these are a direct result of burning fossil fuels, other gases such as methane, f-gases and nitrous oxide also add to the greenhouse effect. At UH, most of our Scope 1 and 2 emissions sit with gas for heating, electricity for energy, and diesel for company cars and the UNO fleet. We have made significant strides in our carbon reduction plan so far, and this year have made board level commitments to go even further:

- A board level objective to meet the Race to Zero commitment by building in sustainability into core University Group.
- A board KPI to reduce emissions year on year

PROGRESS SO FAR

In 2020-21 we emitted just over 12,000 tonnes[3] of scope 1 & 2 CO_2e emissions. This represents a 10.7% reduction on the previous reporting period, and a 48.2% reduction on the 2005/06 baseline level. While much of this was down to a decrease in energy demand and the national grid's energy mix becoming greener, there were other drivers to which the decrease can be attributed, such as continued improvements in building energy consumption across the portfolio:

- Improvements in building fabric, i.e. newer buildings replacing older ones and the renovation of spaces
- Improvements in HVAC systems, lighting systems and controls
- Investment in energy-efficient equipment

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[3] As reported to HESA

- Sub-metering allowing for better monitoring and preventative action
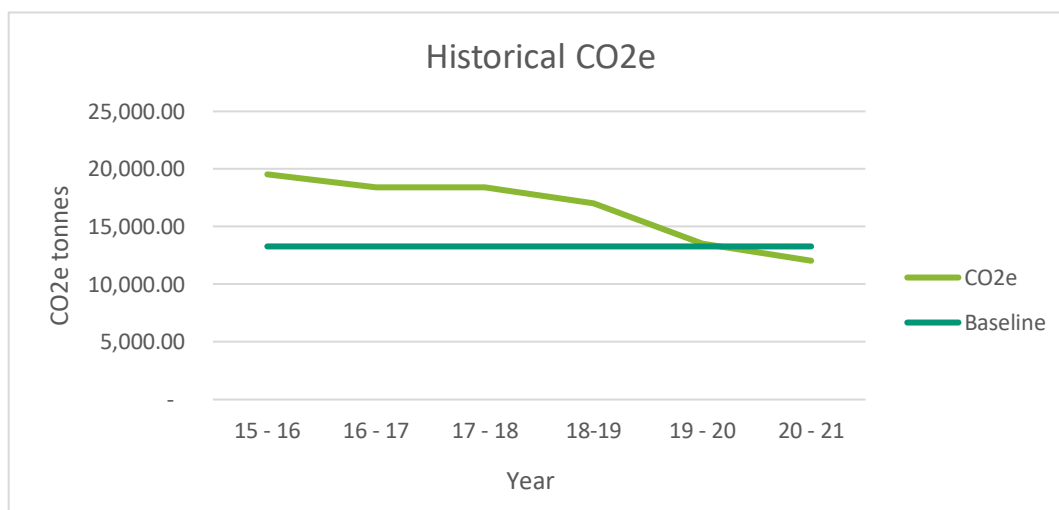

Historical CO2e

Fig. 1 – CO_2e emissions over the last years. Baseline represents 43% reduction on 2005 – 06 levels as set by HEFCE

2020 – 2021 COMMITMENTS

Despite these achievements, however, we are not complacent, and as a University we have this year made a board-level commitment to join the United Nation's Race to Zero campaign, and set a KPI to reduce Scope 1 & 2 emissions year on year. This means that we will aim to be Net Zero by 2050[4], with a 78% reduction in emissions by 2035 against a 2018/19 baseline. This supersedes the previous sector commitment to reduce scope 1 and 2 emissions by 43% against a 2005/6 baseline by 2020.

As a means of articulating our approach to Net Zero, we will be launching our Climate Vision later in 2021. This document will set out the context within which the University will aim to achieve its ambitions, and the pathways to deliver Net Zero:

CARBON FOOTPRINT REPORTING

In order to plan and deliver the new Net Zero targets, we need to understand our current impact, and establish a fully assessed baseline for scope 1 and 2. This will then enable us to develop interim targets and identify priority areas. A carbon footprint assessment will be carried out in 2021. This carbon footprint will cover the whole UH group, including subsidiaries.

ENGAGEMENT AND BEHAVIOUR CHANGE

A Behavioural change programme will help us reduce some of our Scope 3 emissions. By implementing initiatives such as Carbon Literacy and Green Impact we hope to see positive change in areas such as travel, waste, and consumption, both on campus and outside of work / study. While we are in the early stages of considering our Scope 3 impact, building a sustainable community will help instil the mindset necessary to unite all stakeholders under a common purpose. See Sustainable Communities below for more on this.

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[4] Across scopes 1, 2, and 3, and for the whole UH Group, including subsidiary companies

CURRICULUM DEVELOPMENT

The new QAA guidance highlights not only the interconnected nature of environmental and social wellbeing, but also the role that education has to play in building a sustainable future. We will therefore be exploring how to embed climate change and sustainability into the curriculum across all our degrees so that students can gain the awareness and critical thinking skills required to face the environmental challenges presented, and to be the change-makers of tomorrow.

WASTE

Waste can have a significant impact on our immediate, local, and global environment. It can emit pollution to land, water, and air, causing harm to wildlife and humans. This is especially true for hazardous and plastic waste. Waste also emits greenhouse gases during treatment processes such as recycling or converted to energy, and that is provided it is disposed of, segregated, and processed correctly. In many instances it is simply dumped into waterways or countryside abroad. Waste sent to landfill can emit significant greenhouse gases and contaminate the surrounding land if not handled correctly.

Waste also highlights the problem with the linear economy, where resources are used to create items, that are then discarded when no longer wanted. Resource depletion is a serious environmental problem that could be mitigated if products and materials could be re-introduced to existing or new product life cycles, thereby creating a circular economy.

As well as compliance issues, waste can also have reputational consequences if not managed properly, both of which can pose a risk to the continuity of the business. For a full list of the risks and impacts associated with waste, please see Appendix. 2

WASTE AND RESOURCE MANAGEMENT AT UH

The University's Waste and Resource Management Strategy is based on the principles of waste hierarchy which sets out the order in which waste management measures should be prioritised based on environmental impact.

In the first instance, waste should be prevented and minimised; if waste can be avoided then there is no need to look at recycling or disposal options. Where waste cannot be prevented, the University's next aim is to share, lease, reuse, repair, refurbish and recycle existing materials and products as long as possible, thereby creating a circular model of production and consumption, instead of a linear take – make – waste one. Waste that cannot be managed in this way will be processed for energy recovery, or as a last resort, sent to landfill.
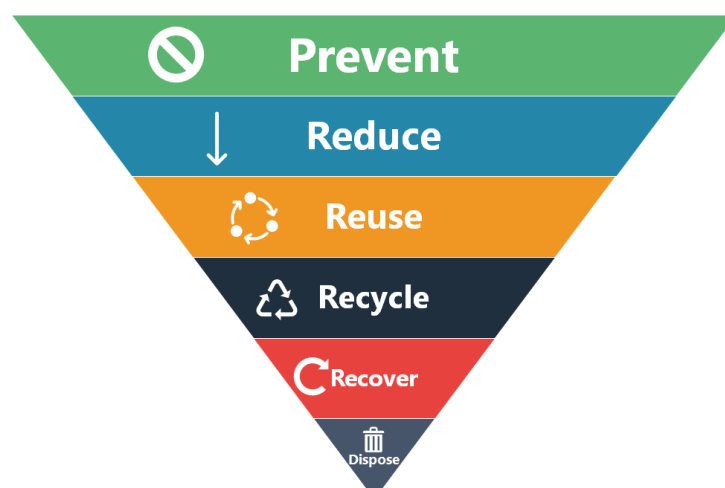
OUR PROGRESS AND ACHIEVEMENTS

The university has consistently seen declining levels of waste generation and increasing levels of recycling over the last few years. The table below provides an indication of performance to date against a number of KPIs.

	Waste Output (tonnes)	Waste per head (kg)	Waste to landfill (tonnes)	Waste to landfill %	Waste Recycled %*	Waste to Energy %
2016 - 17	1142.46	52.5	n/a	n/a	71.9%	28.1%
2017 - 18	851.45	38.5	14.61	1.7%	76%	22.3%
2018 - 19	656.39	29.8	13.55	2.1%	71.1%	26.8%
2019 - 20	502.94	21.9	9.86	2%	72.4%	25.5%
2020 - 21	350.03	14.1	7.34	2%	70.2%	25.5%

total recycling rate includes source segregated recycling, Mixed Recycling Facility (MRF) recovery, composting and anaerobic digestion.

The significant successes for waste management at UH include a 69% reduction in total waste generation between the period 2016 - 2021, and a continued decrease in waste per head, from 53.3 kg in 2016 – 17, to 14.4 in 2020 – 21, equating to a 73% reduction. UH has also maintained a recycling rate of around 70%. While some of the results from 2020-21 can be attributed to reduced occupancy on campus, rates over the last 5 years have been steadily declining, reflecting the efficient waste management systems currently in place.

Some of the challenges identified in the period 2020-21 include increase in single use item and PPE waste, a sometimes-inconsistent signage approach for waste segregation, and a lack of engagement opportunities. These issues will all be addressed in a new Waste and Resource Management Plan, due to be published in 2021, which will include a number of performance indicators to track progress, spot opportunities for improvement, and guide intervention.

IMPROVING OUR BUILT ENVIRONMENT

In 2020 – 21, UH invested significantly in improving the usage and efficiency of its building stock and spaces, helping to reduce our demand for energy and lower our scope 1 and 2 emissions. Some of the projects that were either completed or in progress during this time are listed below:

INSTITUTE OF SPORT

In September 2020, the refurbishment of Club DeHavilland into the Institute of Sport was completed, at a cost of £7.8 m. With the space now being heated, powered, and utilised more efficiently, energy performance has seen dramatic improvements, resulting in significant scope 1 and 2 emission reductions.

LED PROJECT

In the Spring of 2021, a £1.082 m capital expenditure project was approved to replace all the lighting in the De Havilland and College Lane LRCs, which will reduce electricity usage by an estimated 85 %[5], significantly reducing our Scope 2 emissions. The LED project will be carried out in the Autumn 2021 and will be part funded by a grant obtained from SALIX (£750,000).

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[5] For lighting in the LRCs, based on replacing a 60W halogen bulb with a 9W LED one.

SPECS PROJECT

In 2021, £5.95 m was committed to enable the preliminary work for a new SPECS building project, including design work, planning, and site preparation. The vision for the SPECS building is for it to be highly efficient and environmentally sustainable, with renewable energy sources and no gas heating.

ANNUAL CAPEX AND REVENUE PROJECTS

We have undertaken circa £14m of refurbishment projects adopting, where possible, a 'fabric first' approach to reduce Scope 2 & 3 emissions. These included,

- deHavilland Campus - Replacement roof to the Academic Building including new high-performance insulation and
- New high efficiency main boiler plant
- Maclaurin Building - Replacement Chiller plant with improved efficiency
- Ask Herts Hubs – New Office Spaces
- All Campuses - Teaching Room Refurbishments

These projects also featured, where feasible;

- New low energy LED lighting and intelligent controls
- Product selection with our supply-chain that includes recycled and recyclable materials e.g., Flooring and Furniture
- Low VOC paints
- New technology in teaching rooms to allow blended learning to occur, thereby reducing reliance on travel.

WATER

Water is a natural resource, and whilst it is renewable, global warming continues to put pressure on our reserves, making water a fragile resource indeed. Preserving water is extremely important, not just through efficient water-savings solutions, but through the prevention / repair of leaks is the water system.

At UH, we have continued to reduce our water consumption. In 2022-21 we reported 197,000 m^3 of water consumption, which when converted to a more appropriate metric, equates to 9 m^3/person. This compares favourably to 16 m^3/person in the previous year, representing a 44% reduction. While a reduced occupancy driven by Covid can be attributed to some of this improvement, much of it is down to extensive leak detection and rectification works completed at the College Lane Campus.

Historical water consumption
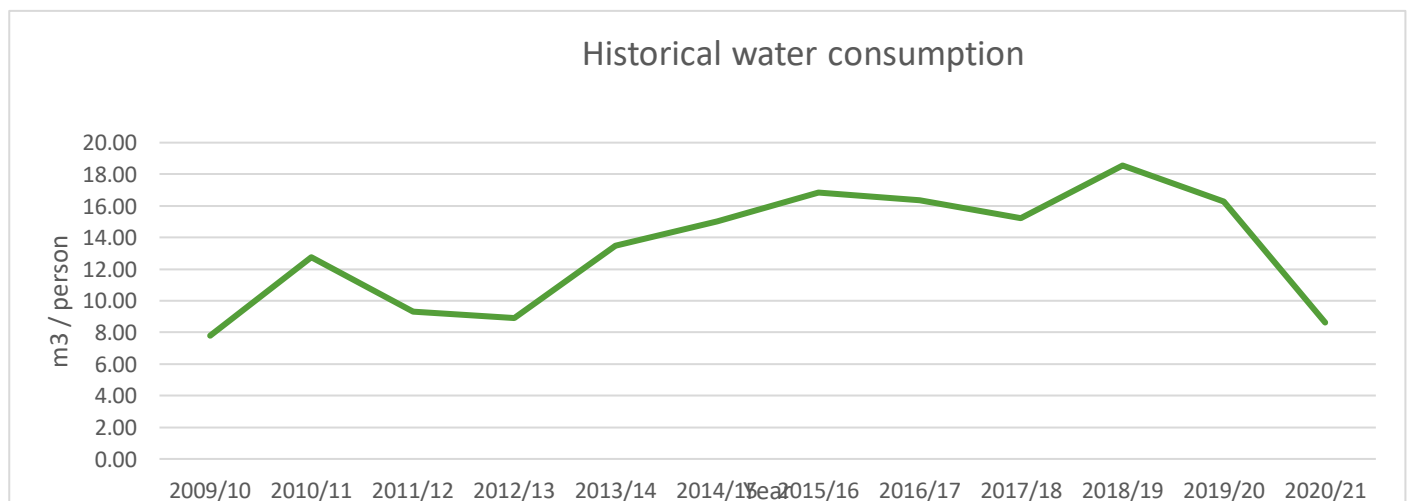
F-GAS

F Gas describes a particular family of fluorinated gases which are widely used as refrigerants in air conditioning and commercial refrigeration systems. At 117 tonnes of CO_2e, F-Gas emissions remained stable during this period. This is largely due to proactive leakage monitoring and system efficiency upgrades where possible.

TRANSPORT
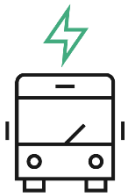
As a result of the pandemic and hybrid working and studying during this period, car parking movements were significantly lower for 2020 - 21 in comparison to a normal year. It is estimated that car movements were reduced by around 65% on the previous year. The travel survey that was due to take place during this period was postponed.

Despite operating during challenging times, UNO bus continued to offer public transport services in and around Hatfield, and to and from the University campuses. Notable achievements in 2020 – 21 included:

- 12 buses received full mid-life refurbishment
- 2 brand-new buses added to fleet to latest low-emission 'Euro 6' standard
- New TfL contract began in November 2020 using four full-electric double deck buses, the first in Uno's fleet
- Operated over 99% of scheduled mileage
- Employed 271 people across the business in range of driver, engineering, management, supervisory and administration roles
- Carried 1.3m passengers, lower than normal due to effect of national lockdowns related to Covid pandemic, but still saving thousands of single-use car journeys.

BIODIVERSITY

With three campuses spanning 97 hectares, the university has a key role in protecting and enhancing biodiversity. Biodiversity is a core component of our Sustainability agenda, and Sustainability is a recurring green thread through the themes and pillars of the University's Strategic Plan 2020-2025. The University's Environmental Policy sets the foundations for its sustainability approach, which makes the following commitments relating to biodiversity:

- *Creating and enhancing wildlife habitats through the implementation of a Biodiversity Action Plan.*

This year we have published our Biodiversity Action Plan for College Lane and De Havilland. The plan was created by a joint working group consisting of representatives from Estates, the School of Life and Medical Sciences (LMS), and the Sustainability team, as well as with the advice from special adviser Stuart Warrington, former Head of

conservation at National Trust. The Biodiversity Action Plan provides a comprehensive overview of the various habitats and species found at the University and identifies opportunities for conservation and enrichment. As well as listing our legal compliance obligations, it also sets out a number of actions that have been categorised by species and habitat, as well as the KPIs proposed to measure progress against each action where relevant.

MANAGING OUR RISKS AND COMPLIANCE OBLIGATIONS
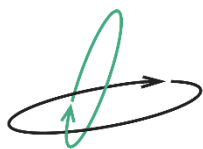
Managing our environmental risks and obligations is a key priority at the University of Hertfordshire. We have a robust Environmental Management System which continues to be governed, managed, and reported on through our working and steering groups, and according to our terms of reference.

While our management system provides the strong foundations upon which to deliver our environmental commitments, it is our demonstration of continual improvement that enables us to be Platinum Eco Campus certified. It is through our EMS that we manage our risks, obligations, and commitments, enabling us to mitigate our impact on the environment as much as possible.

In July 2021, we were externally audited by Interface for ISO:14001 recertification. Site tours of both the main College Lane campus and De Havilland were undertaken and activities investigated included:

- Catering
- Construction and Refurbishment
- COSHH
- Energy and Water
- Grounds and Biodiversity
- Leadership
- Procurement
- Travel Waste and Recycling

The main findings were that the University operates an "effective, robust, and well-managed EMS", that the EMS is "effectively joined-up", and that we demonstrate a "suitably ambitious commitment to continual improvement".

The issue of scope, which currently excludes Bayforbury, was raised as an opportunity for improvement. Bayfordbury has now been included in the scope and will be part of the next surveillance audit in July 2022.

"The Environmental Management System (EMS) was observed to be well developed and operating effectively."

Our environmental risks and opportunities stem largely from our buildings and activities on site, however there are many external factors that also influence our impact that need to be considered. These can be found in our PESTLE analyses (Appendix 2.) which lists influencing factors such as Political, Economic, Sociological, Technological, Legal and Environmental. The PESTLE analysis helps inform our aspects and impacts, which together with other risks identified in the area-specific management plans, are listed on our Aspects and Impacts register. Like with most aspects of university life, our risks and opportunities were also impacted by Covid in 20202-21. To reflect these changes, a new version of the Aspects and Impacts register was created. This can be found in Appendix 3.

BUILDING A SUSTAINABLE COMMUNITY

Our approach to environmental sustainability is about more than just compliance, however, it is about identifying risks beyond legal obligations, harnessing opportunities in our immediate and wider communities, and using our position as a Higher Education institution to drive a positive impact. We want our EMS to act as a launchpad for a broader environmental agenda, where students, staff and other stakeholders are not only aware of our obligations, processes, and commitments, but part of our journey too. In order do this, we need to engage with all our stakeholders, inviting them to take part, learn, share, and develop. This year we have offered a number of opportunities that will help empower the Herts community with sustainability in meaningful and impactful ways.

CARBON LITERACY

In June 2021, we launched the UH Carbon Literacy programme to help educate our staff community on climate change – what it is, why it is important, and how we can help. This project has been led by a dedicated member of staff, and the plan is to run the scheme for a year, at which time we will re-assess to see if and how it can be implemented in the long run.

The course is currently a blended 10-hour programme taught over 4 weeks, and consisting of self-study material and live webinars. For our first two courses we had 24 members of staff attend. Participants have the option to submit an evidence form upon completion to become externally certified by the Carbon Literacy Project. By asking participants to complete a knowledge, awareness, and behaviour questionnaire before and after the course, we hope to be able to measure impact and capture valuable data to inform future action.

This year we have offered a number of engagement opportunities to both staff and students. Many of these have been remotely to keep engagement up during the pandemic, but there have also been some in person events.

ALLOTMENT PROJECT

One initiative that was incredibly popular during the pandemic was the Allotment programme, where staff and students were able to learn about and help with growing food bit at College Land and at Bayfordbury. The initiative was organised by the office of the Dean of Students, and facilitated by Groundworks East. As this video highlights, the project was not only a great way to encourage members of our community to engage with nature, but it also provided some relief and opportunities for students meet other students at a time when this was otherwise very prohibitive. Surplus food from the allotments was donated to the community fridge, where students could help themselves free of charge.

COMMUNITY FRIDGE
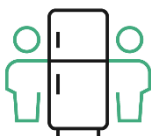
Due to Covid, the Community fridge project was only partially operational this year. In previous years food donated by local supermarkets was then weighed, allowing us to calculate how much was diverted from landfill. In 2020 – 21 we were unable to receive donations from any partner supermarkets, but it was used to help distribute surplus food from the allotments, as well as excess food within the University. We hope that will be able to resume a full Community Fridge service in 2021 – 22, in partnership with the Office of the Dean of Students.

LITTER PICKS

As staff and students were working and studying mostly remotely during this period, group litter picks were put on hold. These will resume in the Autumn of 2021, and will take place on College Lane and De Havilland campus, as well as the surrounding areas.

WINDOWSILL SERIES

During 2020-21, we launched the Windowsill Series to engage staff and students remotely with nature. Our Windowsill Series was all about Wild Connections, and designed to celebrate the health benefits of engaging and immersing ourselves in our environment and connecting with the world around us. The Windowsill Series included events campaigns such as: The Big Garden Birdwatch, Planting for Pollinators, Preparing your Veggie Patch, and

finished with Spring watch. The campaign was judged as a finalist in the Green Gown 2021 Awards benefitting society category. This video explains the campaign in more detail.

HEDGEHOG FRIENDLY CAMPUS

This year, we have signed up to the Hedgehog-friendly campus scheme. This project aims to:
- Better protect hedgehogs and wildlife in the local area.
- To better protect and support hedgehogs on campus.
- To increase awareness around issues affecting hedgehogs in the UK.

The intention to submit for our Bronze award in the Autumn 2021 which will involve: carrying out surveys, creating a working group, running litter picks, working with Estates, and installing bug hotels to name just a few.

STAFF NETWORK

The Sustainability Staff network was suspended this year, however there are plans to relaunch this in September 2021 by making it part of our EMS Engagement objectives. The aim will be to hold themed meetings every 2 months with guest speakers to provide specialist insight.

INVESTING IN PEOPLE

In 2020 we launched a 3-week Sustainability internship programme, offering UH students the opportunity to gain skills and knowledge in environmental management and engagement. Interested candidates were invited to apply via the careers website, the Green Movement WhatsApp group, and StudyNet. 5 students from both Undergraduate and Postgraduate level were selected to take part in the programme which involved online meetings, research, presentations, and project work for 15 hours a week.

In January 2021 we took on a volunteer student from the Environmental Management Masters programme. The student was inducted to our environmental management system, and supported with various activities such as reviewing management plans, analysing at engagement data, and understanding the sector position, to name a few. The student then went on to work on the Carbon Literacy project on a casual basis.

RESEARCH AND IN THE NEWS

While Covid meant that many aspects of University life were put on hold, there were still many note-worthy sustainability academic papers and research projects that made headlines this year.

ROUNDTABLE RESEACH: THE FUTURE OF MOBILITY IN COUNTIES
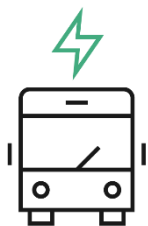
In 2020, the Smart Mobility Unit at the University of Hertfordshire led the roundtables on the future of transport outside cities. With travel research and policy discussion largely focused on cities and pollution, this research was undertaken address the transport issues and challenges outside of cities, especially places like English counties with a mix of market towns, and small villages, where car dependency is very high. With 'Shire' counties being responsible for 74% of the UK's transport emissions, this is a very important piece of research. The project was sponsored by DfT, England's Economic Heartland, Hertfordshire County Council, the Connected Places Catapult and Gascoyne Estates and a total of 10 round table sessions were held which were facilitated by Professor Dr Stephen Joseph, transport policy consultant. Reports of all tens sessions can be found here, and the final summary report was published in July 2020.

The aim was to address and find solutions to transport issues in rural parts of the country. They highlighted several areas where more government support and funding are needed, and showcased initiatives from across the country that could provide immediate solutions, including:

- On-demand bus services. Services like HertsLynx and ArrivaClick are designed to improve connections between rural areas and town centres, as well as increase access to employment, education, healthcare, and shopping.
- E-bike hire schemes such as Brompton Bike Hire and Beryl Bikes. E-bikes extend typical cycling range from three to five miles, which could be useful in rural areas.
- Improved public transport. For example, the One Public Transport for Cornwall project integrates bus and rail travel under a single brand, with the same ticketing system and joint timetables.
- Shared transport schemes like Liftshare, which reduce the number of single-occupancy car journeys to work.

TAPPING INTO TAILINGS: REDUCING WASTE IN MINERAL MINING

Resource depletion is a major environmental concern, and one that warrants attention as we try to find better ways to Another sustainability publication that featured in Construction and Building Materials Journal, is the SPECS paper by Dr Antonios Kanellopoulos MIMMM et al., which explores how the mining and construction industries can come together to reduce waste[6]. It addresses the issue waste derived from the increased demand for mineral commodities such as coal, copper, iron, aluminium, gold, tungsten, zinc etc. In particular, the research considers one of the major sources of waste in the mining process which waste derived from removing valuable material from ore, a process called mine tailing. The paper concludes that "mine tailings can be used as a direct cement replacement or supplementary cementitious material or alkali activated cements based on the chemical, mineralogical and physical properties", thereby providing a great source of raw materials for new binders without further exploiting our natural resources. The full paper can be found here.

LOOKING AHEAD

In 2021 – 22 we will continue to build on our strong foundations and embed sustainability holistically across the university. As the push for climate action intensifies, carbon reduction will remain high on our priority list.

We have plans to:

- Continue investing in a low carbon estate e.g., SPECS building and LED lighting project
- Establish a 2018 – 19 carbon baseline for the university group
- Publish our Climate Vision
- Include Bayfordbury in our EMS scope
- Create a new template for management plans to help link them more closely with our EMS
- Publish our waste and resource management plan
- Work with procurement to create a sustainable purchasing UPR
- Complete our travel survey
- Review our Environment and Sustainability external and internal pages

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[6] S. Maruthupandian, A. Chaliasou, A. Kanellopoulos, (2020) Recycling mine tailings as precursors for cementitious binders – Methods, challenges and future outlook, Construction and Building Materials, volume 312.

Volume 312,

2021,

- Delivery an engagement programme for staff and students such as Green Impact and a Sustainability volunteer initiative
- Focus on environmental awareness education by continuing to roll our Carbon Literacy training and working with academic schools to embed Education for Sustainable development
- Continue to embed the sustainable development goals through toolkits, education, and advocacy
- Carry out a gap analysis for People and Planet with a view to improve our score
- Continue to work with Wellbeing to raise the profile of their connected nature through e.g., Sustainability and Wellbeing festival
- Engage and develop partnerships with external stakeholders and the wider community

MEET THE TEAM

While the aim is for sustainability to be embedded within activities, schools, and SBUs at a local level, there is a core team that helps drive and facilitate this. Individuals that held key responsibilities in 2020 – 2021 included:

Monica Kanwar - Director of Health, Safety and Sustainability
Ian Grimes – Director of Estates
Tracey Russell - Assistant Director of Campus Services
John Corbett – Head of Capital Projects
Paul Davis - Senior Health, Safety and Sustainability Adviser
Tom Andrews - Head of Facilities
Scott Copsey - Senior Lecturer and Transport Planner
Mike Tofts - Energy Manager
Darren Summonds - Head of Procurement
Kirsty – Environment and Sustainability Assistant (until Oct 2020)
Nanna Blomquist – Carbon Literacy project coordinator (from June 2021)
Zoe Austin – Engagement coordinator (from June 2021)

Appendix 1. Sustainable Development Goals

Appendix 2. PESTLE Analysis for Environmental Management at UH

University of Hertfordshire UH

PESTLE Analysis

External issues	Risks	Opportunities	Score of importance 1 not important to 5 Important	Internal issues	Risks	Opportunities	Score of importance 1 not important to 5 Important
Changes to government policy	Due to COVID 19, changes to policy may put public funding of higher education at risk e.g. research grants. A reduction in overall funding may reduce the resources allocated to the EMS.	Government policies may incentivise the institution to address environmental issues in order to reduce costs		Restructuring - Management	Risk of losing supportive management staff	Opportunity to engage with new staff members	
Changes to taxes/levies Green Taxes and Levies	An increase in taxes may reduce funding for the EMS.	An increase in tax linked to energy or waste may incentivise the institution to become more efficient. Engage in practive Plannning to reduce risks		Restructuring - Strategies/Policy	Potential for focus to be reduced from EMS	Opportunity to ensure that Environmental management is considered within institutional strategy during the Strategy Review	
Influence from NGO's, unions or other external bodies.	Unions may highlight poor environmental performance; Funding bodies may place further environmental requirements on institutions which entails additional resource	Incentivise good environmental management practice Student engagement opportunities for environmental initiatives		Budget for Environmental Management	Failure to invest in cost saving technology Failure to provide legal compliance via EMS. Risk to budget form UH financial performance / student recruitment. Budgets might be reduced due to the impact of	Implement cost saving Prove legal compliance Use EMS to identify cost savings	
General public pressures	Risk of not meeting public expectations for environmental performance especially when many orgnaisations are announcing a Climate Emergency.	Adds pressure to ensure good level of environmental performance		Varying focus of management during term times	Lack of commitment during peak times whilst working off site and working during the impact of COVID 19	Opportunity to implement environmental initiatives during quite periods in preparation form student return	
League tables	Reputational damage	Adds pressure to ensure good level of environmental performance		Resistance to change	Lack of commitment from staff & push back from unions	Opportunity to engage with staff	
International Commitments and Brexit policy changes	University unprepared for changes in environmental legislation after Brexit and from future Climate Change talks	The Environmental Management Systems prepares the University/ EMS for key changes May Reduce Red Tape		Lack of awareness / engagement	Risk of failing to meet requirements of the standard	Opportunity to engage with staff and students	
Government Policy e.g. (25 Environmental Plan) and change to local government policy	UH unready to meet the policy commitments to achieve a green Brexit including the 25 Year Environmental Plan and the New Environmental Act.	Existing University environmental management processes and EMS have positioned the University to meet many of these challenges		Internal Stakeholder Expectations e.g. Student and Staff	Failure to meet student and staff expectations related to university environmental performance resulting in potential difficulty recruiting both	Potential to use environmental performance as a recruitment tool	
External stakeholder expectations such as, Community, local NGO's and media	Lose of licence to operate due to environmental incident, noise and management of student impacts in community.	Proactive working with community to manage UH impacts Maintaining the Environmental Management System to reduce					

Economic Issues							
External issues	Risks	Opportunities	Score of importance 1 not important to 5 Important		Internal issues	Risks	Opportunities	Score of importance 1 not important to 5 Important
Changes to economic climate	A downturn in the economy due to COVID 19 may negatively impact the institution's investment in environmental initiatives	Present opportunities for investments in environmental initiatives e.g. increase energy prices may decrease the payback periods for energy efficiency projects?			Budget changes	Re-allocation of funds away from EMS and related initiatives during COVID 19	Re-allocation of funds for EMS and related initiatives	
Changes to taxes etc.	Increased taxation may reduce funding available for EMS	Increased taxation may incentivise investment into environmental initiatives			Budget for Environmental Management	Failure to invest in cost saving technology Failure to provide legal compliance via EMS Risk to budget form UH financial performance / student recruitment	Implement cost saving Prove legal compliance Use EMS to identify cost savings	
Legislation changes e.g. heat network (installation costs)	Increased costs to ensure compliance	Forces spending on environmental management			Institution's financial performance	Poor financial performance may lead to withdrawal of funding from EMS	Positive financial performance may lead to further funding for environmental initiatives.	
Energy costs	Increase in energy costs may decrease funding available for the EMS	Incentive to reduce energy consumption and investment into energy saving initiatives Increased energy prices may decrease the payback periods for energy efficiency projects			Significant decisions	The institution's strategic direction may not align with the intended outcomes of EMS. Large capital projects may not sufficiently address environmental issues	Opportunity to address environmental issues early on in capital development process	
Availability of funding	Previous government policy changes have allowed Universities to charge higher tuition fees but have also reduced public funding.	There are funding schemes available for institutions e.g. Revolving Green Fund. Energy performance contracting schemes could be used to finance renewable			Changing student numbers	Higher proportion of HE institution funding is linked to tuition fees therefore greater emphasis placed on retaining student numbers	Increased engagement opportunities	
Green Taxes and Levy's	Risk of increased costs particularly on energy usage	Proactive planning to reduce risks			Institution's direct impact on the environment (Carbon, Transport, Waste, Building Management, Food and Biodiversity)	Failure to develop strategies and targets which ensure that University operations meet the needs of 1.5° C world Failure to achieve cost savings Failure to manage contractors to deliver the impacts.	Opportunities to develop strategies that meet the a 1.5°C world. - Phasing out natural gases and increase use of renewables - Electrification of transport - Promotion of Vegan and	
Resource costs and availability (for physical goods)	Increase population will put pressure upon resource availability (Population of between 9 and 10 billion by 2050), resulting in increasing costs across all procurement categories.	Opportunities to embed circular economy principles. Work to reduce and reuse waste across all procurement categories. Achieve cost savings via the EMS			Sustainable Procurement	Failure to address environmental and social supply chain impacts	Promote positive environmental and social management through supply chain	
Sub Contractors	Lack of control and training of sub contractors leading to environmental incidents	For intigrating best practice processes and achieving cost savings			Stranded Assets	Fossil Fuel investments may loss as a result of climate change policy	Review investment vulnerability to Climate Change and Policy impacts	

Social Issues							
External issues	Risks	Opportunities	Score of importance 1 not important to 5 Important	Internal issues	Risks	Opportunities	Score of importance 1 not important to 5 Important
External stakeholder expectations such as, Community, local NGO's and media	Lose of licence to operate due to environmental incident, noise and management of student impacts in community.	Proactive working with community to manage UH impacts Maintaining the Environmental Management System to reduce environmental risks		*Demographics*	Environmental initiatives may be halted by certain groups e.g. Objections to wind / solar projects from local communities.	Changing demographics may increase support for environmental initiatives	
Societal pressures and cultural trends e.g. Single use plastic (Disposables)	Failure to respond to new and existing environmental concerns with potentially detrimental effect on perceptions of future students	Pre-empt likely trends and proactively make positive changes to manage cultural expectations		*Expectations of internal interested parties - SU, staff, student bodies*	Lack of stakeholder pressure may detract focus away from the EMS	Stakeholder pressure may incite investment into environmental initiatives	
Impact of climate change on society	By not responding to climate change, the institution is risking the impact of potential adverse health and wellbeing effects on staff and students	Increased climate change awareness can make it easier to engage staff and students		*Staff retention*	High staff turnaround can negatively affect EMS through lack of engagement	Engage new staff with new ideas and increase the engagement across a larger group of individuals	
				Environmental awareness	Lack of awareness can hinder EMS progress	A lack of awareness may present opportunities for behavioural change.	
				Education for Sustainable Development (Graduates of Tomorrow)	Students have an expectation that universities will be sustainable. Additionally, 60% of students nationally wish sustainability subjects to be embedded into the curriculum. The University has the potential not to meet desire and need, and become less competitive as a result	Work to embed sustainability across the curriculum	
				Internal Stakeholder Expectations e.g. Student and Staff	Failure to meet student and staff expectations related to university environmental performance resulting in potential difficulty recruiting both	Potential to use environmental performance as a recruitment tool	
Technological Issues							
External issues	Risks	Opportunities	Score of importance 1 not important to 5 Important	Internal issues	Risks	Opportunities	Score of importance 1 not important to 5 Important
Technological advancement	Failure to adopt and adapt to new low carbon technologies	Proactively adopt technologies which produce cost savings and provide opportunities for continuous EMS improvement		*Technological advancement*	Failure to adapt to technical changes	Opportunity to active as an innovation hub and living lab for new technology. Use of onoline tools to increase education opportunties	
Costs	High technology costs with relatively long payback periods can reduce uptake of new technologies	Costs of technologies will likely fall over time becoming more financially viable		*Use of new technology*	Technologies may not be used to full capacity e.g. complex energy monitoring systems are only useful if data is used to manage energy consumption	Hot desking / remote working may reduce energy and transport emissions.	
Funding availability for technologies	A reduction in the financial incentives for technologies may make it harder for the institution to achieve carbon reduction targets e.g. Closure of Feed in tariff scheme	External funding available for carbon reduction technologies		*Capital development and Existing Infrastructure*	Failure to adopt environmental standards for new projects. Failure to adapted projects to future climate change	Opportunity to design buildings with adaptations to extreme weather and climate change and, meet future requirements for renewable energy usage and elimination of gas usage.	

Legal Issues							
External issues	**Risks**	**Opportunities**	**Score of importance 1 not important to 5 Important**	**Internal issues**	**Risks**	**Opportunities**	**Score of importance 1 not important to 5 Important**
New legislation	Prosecution for non-compliance Costs associated with tax, levies and fines	Incentive to manage environmental responsibilities		**Environmental training and awareness programmes**	Failure to train student and staff in environmental management and legislation Failure to achieve cost savings from environmental awareness campaigns	Opportunity to produce cost savings from engagement programmes Train teams in environmental management techniques	
Cost of compliance	Increased costs of compliance may detract funding from other areas			*Awareness/keeping up to date*	Lack of knowledge, understanding and accountability of legal requirements can lead to non-compliance	Opportunities to engage with staff to ensure compliance and create training programmes	
International Commitments and Brexit policy changes	University unprepared for changes in environmental legislation after Brexit and from future Climate Change	The Environmental Management Systems prepares the University/ EMS for key changes		*Staff knowledge*			
				Communication			
				Responsibility			
				Accountability			
				Operational changes - cost/training	Resistance to comply due to extra resources required		
				Enforcement	Lack of enforcement from regulatory bodies can make it difficult to demonstrate the need to comply		

Environmental Issues								
External issues	Risks	Opportunities	Score of importance 1 not important to 5 Important		Internal issues	Risks	Opportunities	Score of importance 1 not important to 5 Important
Climate change (1.5C report)	Failing to meet target will increase negative effects of climate change. Implications of target include electrification of transport systems, requirement to produce electricity from renewables and phasing out natural gas as source of heating	Pre-empt the changes needed to meet the 1.5° C target in future waste, energy and transport plans.			*Institution's direct impact on the environment (Carbon, Transport, Waste, Building Management, Food and Biodiversity)*	Failure to develop strategies and targets which ensure that University operations meet the needs of 1.5° C world Failure to achieve cost savings Failure to manage contractors to deliver the impacts.	Opportunities to develop strategies that meet the a 1.5°C world. - Phasing out natural gases and increase use of renewables - Electrification of transport - Promotion of Vegan and vegetarian life styles Use EMS to identify cost	
Increase risk from Extreme Weather, Water stress and Food supply chain interruptions	Failure to adapt to the effects of climate change from an infrastructure and impacts to our supply chains	Opportunity to create adaption mitigation plans for climate change and prepare for likely risks to food supply chains			*Sustainable Procurement*	Failure to address environmental and social supply chain impacts	Promote positive environmental and social management through supply chain	
Resource costs and availability (for physical goods)	Increase population will put pressure upon resource availability (Population of between 9 and 10 billion by 2050), resulting in increasing costs across all procurement categories.	Opportunities to embed circular economy principles. Work to reduce and reuse waste across all procurement categories. Achieve cost savings via the EMS			*Scope 3 carbon emission (Emissions from Business travel, procurements and third-party residences)*	Failure to address carbon emissions resulting in unintended climate change effects	Opportunity to be sector leading by joining the Science Based Targets movement	
Societal pressures and cultural trends e.g. Single use plastic (Disposables)	Failure to respond to new and existing environmental concerns with potentially detrimental effect on perceptions of future students through th euse of single use plastics as a result of COVID 19	Pre-empt likely trends and proactively make positive changes to manage cultural expectations			*Capital development and Existing Infrastructure*	Failure to adopt environmental standards for new projects. Failure to adapted projects to future climate change	Opportunity to design buildings with adaptations to extreme weather and climate change and, meet future requirements for renewable energy usage and elimination of gas usage.	
					Environmental Research	Failure to take advantage of research opportunities needed to deliver a low carbon future	Potential to expand research opportunities into low carbon lifestyles and technology	

Appendix 3. Environmental aspects and impacts for all activity areas, including changes as a result of Covid.

University of Hertfordshire — University Environmental Risk Register (Aspects & Impacts)

Sustainable Development Goal	Risk Number	UH Strategic Theme	Risk Discription	Consequence and Impact (Negative Environmental Impacts: Risks and Threats)	Consequence and Impact (Positive Environmental Impacts: Opportunities including lifecycle approach)	Possible Causes/ Triggers of Environmental Risk	Positive or Negative impact	Risk Owner	Risk Operational conditions Normal, abnormal or emergency	Pre-Controls Sev of Impact	Freque of impact	Significan	Compliance risk (Yes/No. Is there related legislation	Mitigation Controls in Place: Detail the University Action Plan, programme or target associated with the significant environmental risk	Post-Controls Sev of Impact	Freque of impact	Significan	Explination of mitigation score	SBU actions	Links to Business Continuity Plans	Business Risk Long Term
7 Affordable and Clean Energy; 13 Climate Action	ENV1	Business and Sustainability	Use of Energy: Use Electricity, Heating Oil and Natural Gas	Greenhouse gas, NOx SOx emissions and use of natural resources. Increase in costs from utilities	Use of Renewable Energy onsite or offsite generation. Potential to save costs from reduction and emission saving technologies	Source of energy used. Change in energy provider, Change in supplier contracts, Poor oversight of energy consumption	Neg	Energy Manager	Normal	5	3	15	Y	Carbon Management Plan	5	3	15	With only a skeleton crew of staff onsite and no students the energy use has reduced substantially. Carbon reductions of 21% have been achieved	Promote switching off items. Use energy efficient equipment	Covid -19 Included in Business Risk Register with aspects such as increase in costs from utilities in future. Included in Brexit Risk Register from interuption to supply	Increases in utility costs and reductions Continuity of Supply Impact on UH core business and accommodation
11 Sustainable Cities and Communities; 13 Climate Action	ENV2	Business, People and Sustainability	Transport: Student and Staff commuting, Fleet vehicles and business travel	Greenhouse gas, NOx, SOx emissions. Particulates and used of resources. Scope 3 carbon emissions from business and commuting	Promotion of Travel Hierarchy, e.g. cycling and walking, public transport and electric vehicles and managing a bus company.	Provision of viable and affordable alternatives to single vehicle usage and non renewable transport	Neg	Travel Planner	Normal	5	2	10	Y	University Travel Plan	5	2	10	At current home working is stopping nearly 99% of travel. When lockdown eases there might be an increase in self occupancy travel and reduction in use of public ransport. Student travel targets achieved with parking policy aiming to tackle staff travel targets	Promote walking and cycling. Use public transport or video conferencing for business travel	Covid -19 Brexit Risk Register from increase costs from fuel impacting on student and staff recruitment.	Future increases in fuel costs and preparation for low carbon alternatives to transport. Reputational impact from not being seen to be Green
8 Decent Work and Economic Growth; 12 Responsible Consumption and Production	ENV3	Business and Sustainability	Procurement of goods and services	Embedded carbon, reuse usage, impacts on modern slavery, conflict minerals and biodiversity. Scope 3 carbon emission from manufacture and	Promotion of waste hierarchy principles and circular economy. Positive benefits to suppliers and local services.	Procurement of services with negative environmental, social and reputational impact. Change of supplier.	Neg	Procurement Team	Normal	5	4	20	N	Sustainable Procurement Guides and Sustainable Procurement Policy	5	3	15	Less goods and services being purchased as the bussiness adjusts to home working and students not being on campus. Sustainable procurement programmes in place	Follow sustainable procurement guidance	Covid -19 Interruption to supply chains included on Business Risk Register. How Security of supply, vlue for money and local procurement in terms of reputational	Security of supply with limited global resources. Promoting the circular economy. Reputational Corporate Social Responsibility
3 Good Health and Well-being; 12 Responsible Consumption and Production	ENV4	Business and Sustainability	Procurement of goods and services: Catering (Outsourced)	GHG from farming supply chains, reuse usage, land usage and negative biodiversity impacts	Support of vegan and vegetarian options, supply chain benefits from Red tractor and Fairtrade, and support of local supply chains	Reputational impact from supply chain and disruption to food supply from Brexit and Global Heating. Change of supplier and	Neg	Assistant Director Campus Services	Normal	5	1	5	N	New catering contract includes sustainable procurement and management criteria	5	1	5	Catering outlets have been closed and staff encouraged to bring in their own packed lunches. Programme of sustainability criteria is being created	Purchase vegan and vegetarian options, use reuses mugs, use tap water instead of bottled	Covid -19 Included in University Risk Register in terms of food safety and wellbeing risks	Reputational: Food Poisoning and samonella risk. Not been supporters of Local Supply chains. Not being Green and costs of compliance
9 Industry, Innovation and Infrastructure; 11 Sustainable Cities and Communities	ENV5	Business and Sustainability	Construction and Refurbishment of Buildings	Construction waste, use resources, produce dust, noise, Hazardous chemical usage, use of water,	Breaam building, low energy and water infrastructure, invest in renewables and Enhance Biodiversity	Failure to construct energy efficient buildings, adapt Climate Change e.g. future cooling and heating needs	Neg	Assistant Director, Property and Development	Abnormal	5	5	25	Y	Use Breeam Standards	5	4	20	New buildings are using this standard. Construction work might have been delayed but it does not change the score when considering Covid 19	Use of sustainable building materials, energy efficient buildings, net biodiversity gain principles, high recycling	Covid -19 Impact on Student Experience. The Estates Risk Register includes energy usage in terms of investment	Brexit - impact on costs/ supply/ skills. Reputational risk if construction not effeclvely managed
12 Responsible Consumption and Production	ENV6	Sustainability	Waste Estates: Production of standard office hazardous and non-hazardous waste	Resource usage, air and water emissions associated with waste and management of plastics	Increase recycling, reuse, reduction and elimination across waste streams.	Increase in waste production, increases costs, provisional of singlel use disposables, international changes to recycling markets, Brexit.	Neg	Head of Facilities Management	Normal	5	3	15	Y	Waste and Resources Strategy	5	2	10	Whilst the Campuses are working on a skeleton crew and the students are off site waste production has decreased by 90% on like for like months. 75% recycling rate, 100 tonnes reduction in waste and 98% diversion from landfill.	Promote recycling facilities and use office food waste bins	Covid -19 Risk Brexit may affect the current waste processes	Failure to meet regs/ non compliance and Reputational impacts
12 Responsible Consumption and Production	ENV7	Sustainability	Waste Managed by SBU's: Production non office wastes e.g. clinical, lab etc.	Incorrect management of materials, fly tipping.	Apply waste hierarchy (lifecycle) and minimise quantity of substances stored onsite	Increase in waste production, increases costs, provisional of international changes to recycling markets, Brexit	Neg	SBU Safety Contacts/ HSS	Normal	4	4	16	Y	Waste and Resource Strategy	4	3	12	Researches will be some of the first staff back on site. And thus will generate more waste than other areas. There needs to consideration of the hazardous waste collectors working at full capacity The audit cycle has identified minimul issues with waste management	Ensure hazardous waste streams are managed according to waste guidance	Covid -19 Risk Brexit may affect the current waste processes	Failure to meet regs/ non compliance and Reputational impacts
6 Clean Water and Sanitation	ENV8	Business and Sustainability	Water Usage: Use and disposal	Use of water resources	Implementation of water saving technologies	Leak of water / drought	Neg	Energy Manager	Normal	4	5	20	Y	Target in Place	4	4	16	Whilst water useage will have reduced. Water leaks are still likely. Current target has been exceeded	Fill the kettle to correct amount	Covid -19 Not specified	Costs/ waste supplies reputation

SDG	Ref	Category	Aspect	Impact	Opportunity	Risk Event	Pos/Neg	Owner	Status	S	L	Score	Y/N	Control	S	L	Score	Notes	Action	Covid-19	Other
13 CLIMATE ACTION	ENV9	Business and Sustainability	F Gas/ Ozone Depleting Substances: Air Conditioning	GHG impacts from Fgas management	Potential to limit the high GWP gases in use.	Leak of F Gas	Neg	Head of Maintenance/ Health and Safety Adviser (Estates)	Abnormal	5	4	20	Y	Estates control process via Tenon Contract	5	3	15	F-gas leaks can still happen during this time. The Estates team have introduced an accute system for monitoring F gas	Follow F gas legal requirements	Covid -19 Not specified	Penalities for non-compliance and reputational impact
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	ENV10	Business and Sustainability	Use of hazardous substances: COSHH in cleaning and research	Incorrect disposal and use of substances resulting in Environmental Pollution	Minimise use and work to use less hazardous substances	Accident or spill	Neg	SBU Safety Contacts/ HSS	Abnormal	4	4	16	Y	Health and Safety Guidance and Training. Auditing programmes to address concerns	4	3	12	Being provided a procedure by waste contractor for handling the disposal of PPE will reduce the disposal of some items as hazardous. Well developed system for managing the risk across the University	Apply health and safety guidance, eliminated hazardous substances and minimise the use of hazardous substances where they are required.	Covid -19 Has appeared on the Business Continity Risk Register in the past.	Reputation. Unclear regs post Brexit. Poor/ Ineffective use of resources
4 QUALITY EDUCATION	ENV11	People and Sustainability	Engagement: Education for Sustainable Development	Failure to prepare Graduates for likely environmental changes	Education for Sustainable Development and Engagement Campaigns	Failure to meet students expectations in relation to environmental management	Pos	HSS Team	Normal	4	4	16	N	Student and staff engagement programme	4	3	12	Ensure that a programme of line engagement campaigns is considered. Green team programmes for the year.	Embed Education for Sustainable Development into course curriculums	Covid -19 Ensure integration with UH Objectives Explore ptions via ADC/ Programme boards (Global Strategy)	
11 SUSTAINABLE CITIES AND COMMUNITIES / 17 PARTNERSHIPS FOR THE GOALS	ENV12	Research and Sustainability	Research	Research into technology which is detrimental to the Environment.	Carry out research to benefit the Environment	Failure of take advantage of opertunities for Environmental Research	Pos	Pro Vice-Chancellor (Research and Enterprise)	Abnormal	3	4	12	N	Research Themes	3	4	12	There might be a reduction in the available funding for some research projects. No specific mechanism for environmental research	Promote opportunities to develop research into environmental issues	Covid -19 Clarity of UH requirements and related regs and targets Clear link to UH strategic objectives	
	ENV13	Business and Sustainability	Use of hazardous substances: Asbestos Management	Potential to expose students and staff to Asbestos's where it is badly managed	Removal and safety disposal of Asbestos's	Failure of the Asbestos Management process	Neg	Head of Maintenance/ Health and Safety Adviser (Estates)	Abnormal	4	3	12	Y	Estates Asbestos register and permits to work	4	2	8	No impact from Covid 19 if contractors and Estates contonue to work to the Management plan is extensive	Ensure that Estates is consulted in regards to all issues involving Asbestos	Covid -19 Appears on the Estates BCR. Clarity of regulations post Brexit (unlikely to change)	
4 QUALITY EDUCATION	ENV14	People and Sustainability	Teaching: Education for Sustainable Development	Failure to prepare Graduates for likely environmental changes	Education for Sustainable Development and Engagement Campaigns	Failure to meet students expectations in relation to environmental management	Pos	HSS Team	Abnormal	2	5	10	N	Student and staff engagement programme	2	5	10	Speicific programme not in place. Think about online prgrammes	Embed Education for Sustainable Development into course curriculums	Covid -19 Ensure integration with UH Objectives Explore ptions via ADC/ Programme boards (Global Strategy)	
15 LIFE ON LAND	ENV15	Sustainability	Biodiversity: Management of University grounds	Reduce biodiversity via use of pesticides, herbicides, introduction of invasive species.	Improve Biodiversity Impacts	Management of the grounds which damages existing wildlife or reduces biodiversity. Construction projects	Pos	Head of Facilities Management	Normal	3	3	9	Y	Target to Create a BAP	3	2	6	Reduced work on site during lockdown restrctions BAP is draffted	Take part in Biodiversity activities advertised on staffq	Covid -19 Integrate into community and environment strategy	
17 PARTNERSHIPS FOR THE GOALS	ENV16	Community and Partnerships	Community Engagement: Work to improve relations with local community	Have negative impact from noise, litter and impacts from developments	Litter picks and community projects such as the Community Garden and the Community Fridge	Community Complaints	Pos	Dean of Students	Normal	3	3	9	N	Targets in Place	3	2	6	Some activities were cancelled but online programme continues. The community team engage the wide community programmes and run litter picks		Covid -19 Integrate with community objectives	
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	ENV17	Business and Sustainability	Use of hazardous substances: Oil and Fuel Management: Use, storage and disposal	Potential for spills and creation of contaminated land	Reuse usage of oil to minimise associated risks	Contamination of Land or water	Neg	Health and Safety Adviser (Estates)/ Senior Research Fellow (Engineering) and	Normal	4	2	8	Y	Oil Management Procedures in Engineering	4	1	4	Procedures in place. Ensure that inspections of stores still occurs where necessary	Manage oil stores in compliance with HnS guidance	Covid -19 Reputational risk	
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	ENV17	Business and Sustainability	Use of hazardous substances: Oil and Fuel Management: Use, storage and disposal	Potential for spills and creation of contaminated land	Reuse usage of oil to minimise associated risks	Contamination of Land or water	Neg	Health and Safety Adviser (Estates)/ Senior Research Fellow (Engineering) and Infrastructure Development Manager (Library and Computer Services)	Normal	4	2	8	Y	Oil Management Procedures in Engineering	4	1	4	Procedures in place. Ensure that inspections of stores still occurs where necessary	Manage oil stores in compliance with HnS guidance	Covid -19 Reputational risk	

	Ref	Category	Aspect	Impact	Control	Failure	Type	Owner	Condition	L	C	Rating	Y/N	Controls	L	C	Rating	Comments	Action	Covid	Further Action
SDG 13 CLIMATE ACTION	ENV18	Sustainability	**Adapting to Climate Change:** Infrastructure on Campus	Negative impacts on the University Estate from Climate Change e.g. extreme weather	Adapt the campus to the likely effects of climate change	Failure adapt the campus to future weather and supply challenges	Neg	Director of Estates	Abnormal	2	2	4	N		2	2	4	No changes during the period of lockdown. No specific programme in place		Covid -19 Sever weather appears on the Estates BCR in terms of them managing it	Include risk with Corporate Risk Register and impacts on core business
SDG 12 RESPONSIBLE CONSUMPTION AND PRODUCTION	ENV19	Business and Sustainability	**Use of hazardous substances:** Radioactive isotopes	Accidental release, inappropriate management	Low levels radiation used for research.	Contamination incident	Neg	Technical Manager (School of Life and Medical Sciences) and HSS Team	Abnormal	4	1	4	Y	Radiation Management Plan local procedures	4	1	4	No change. Has not been used in the University siince opening of New Science Building.	Manage in compliance with HnS guidance	Covid -19 Clarity of regs and management reputation	
SDG 11 SUSTAINABLE CITIES AND COMMUNITIES	ENV20	Business and Sustainability	**Vehicle:** use and disposal	GHG emissions from usage. Incorrect disposal of vehicles	Electric vehicle usage. Correct vehicle recycling	Failure to procure electric or low emission vehicles	Neg	Estates/ Senior Research Fellow (Engineering)/ HSS Team	Normal	3	1	3	Y	Fleet vehicle are largely electric	3	1	3	Reduced usage could increase the positie impact but will leave as is. Good controls	Use electric vehicles	Covid -19 How to achieve UH default	
SDG 15 LIFE ON LAND	ENV21	Business and Sustainability	**Emissions to Land Water:** Substance Spill and Pollution to Drain	Pollution of land, surface water or ground water by hazardous material or material with high turbidity e.g. any liquid which is not rain water.	None	Substance spill	Neg	Estates/ Security and SBU Safety Contacts	Abnormal	3	1	3	Y	Spill response in place via Security and spill kits in high risk SBU's. No disposals of waste liquid to external drains	3	1	3	Ensuing the staff onsite have refresher training to manage spills if less trained people are available onsite.	Train team in managing spills of substances and food stuffs to prevent injury and leak to drain	Covid -19 Reputational risk	
	ENV22	People and Sustainability	**Fire**	Pollution to water, land and air	None	Fire	Neg	HSS Team and all SBU's	Emergency	2	1	2	Y	Fire management in place	2	1	2	No change		Covid -19 Ensure compliance and	
SDG 12 RESPONSIBLE CONSUMPTION AND PRODUCTION	ENV23	Sustainability	**Emissions to Air:** Fume Cupboard	Emissions to air	Use of filter reduces impact	Contamination of air	Neg	Senior Research Fellow (Engineering) and Technical Manager (School of Life and Medical Sciences)	Abnormal	1	2	2	N	Minimal emission and filter systems in place	1	1	1	Less work taking place. Esnure appropriate checks take place before restarting work		Covid -19 Reputational risk	