



2021/22 ANNUAL ENVIRONMENT REPORT

FOREWORD



As announced in BCU's Strategy 2025, BCU aims to ensure that in every aspect of our work we minimise the adverse impact of operations, and that we work with our students to create a sustainable future. The summer heatwave and the ongoing energy crisis, amongst other challenges in 2021/22, have underscored BCU's commitment to pursuing environmental sustainability as a top priority.

Despite the challenges, BCU built on previous success and rose through the People and Planet rankings to joint 31st. Most notable were the points achieved for the work on sustainability in the curriculum. Alongside this the variety of events and communications throughout the academic year provided students with a wealth of opportunities to learn and get involved in the practical delivery of environmental change.

An application for grant funding for energy efficiency retrofit in our buildings is the start of BCU's net zero journey, if the application is successful these projects will be completed by 2024. These projects will not only prove the case for net zero retrofit but will have a positive impact on carbon emissions for years to come.

As BCU continues to thrive and grow we will continue to evolve our approach to environmental sustainability. The refreshed Environmental Plan will create even more stretching targets, progress against which will be monitored regularly.

Professor Philip Plowden
Vice Chancellor

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INTRODUCTION

2021/22 has been another unprecedented year with a great deal of volatility in the energy sector. This has made it challenging to deliver utility procurement and energy budget certainty for BCU. During this period there have also been several key legislative changes that will impact on BCU's delivery of environmental sustainability going forward including the tightening of building regulations and the requirement to increase biodiversity on new developments.

Inevitably as staff and students have returned to campus environmental impacts and associated emissions in some areas have significantly increased compared to 2020/21. Because the pandemic years are not easily comparable the baseline year of 2018/19 has been used in several cases. This was the last year of 'normal' on campus activity.

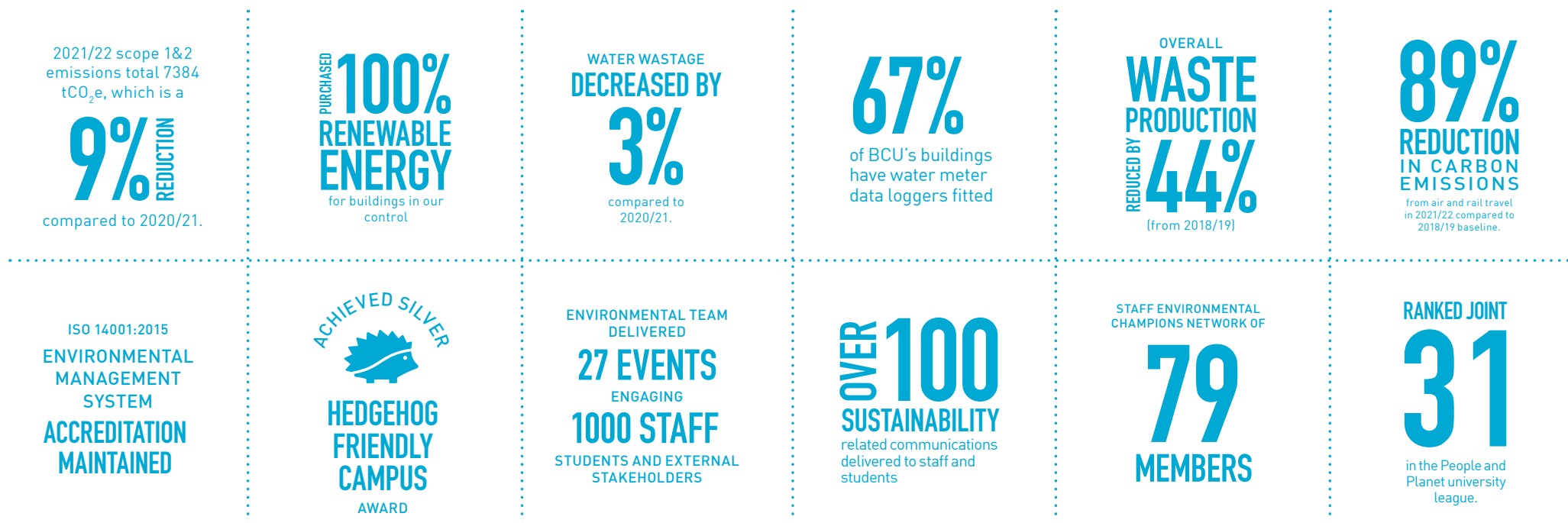
During 2021/22 several new properties entered BCU's portfolio including the 3 commercial units in Digbeth and Jennens Road Building. Additionally, the School of Acting moved into Ruskin

Hall and Maple House, re-occupying the Bournville properties that had been mothballed. These buildings have been incorporated into the Environmental Management System and are regularly monitored.

There will be a major update to the Environmental Plan during 2022/23 to reflect the outcomes of work undertaken during 2021/22 notably the creation of the biodiversity action plan, net zero strategy, balance scorecard key performance indicators, evolving best practice in sustainability, changes in environmental and building legislation, and alignment with other BCU strategies.

Each section of this report outlines the status against the objectives, actions and targets for each of the Environmental Plan's three key objectives, a summary of the main activities that have taken place over 2021/22, and an overview of actions to progress work in each area.

Headline figures and successes from 2021/22 include:



OBJECTIVE 1: EMBEDDING SUSTAINABILITY IN OUR PROCESSES



Environmental Management System

Objectives and Targets	Status
Continue to manage, maintain and continually improve our ISO 14001:2015 certified Environmental Management System throughout 2020-25.	Achieved

Progress update:

EcoCampus conducted a peer audit of our Environmental Management System (EMS) in December 2021, ahead of the external audit. The two-day audit included a review of EMS documents, evaluation of compliance, interviews with members of staff, and on-site audits of Curzon Building and Millennium Point.

The audit identified five minor non-conformities (MiNC) and ten opportunities for improvement (OFI). The MiNCs related to missing information on consignment notes, spill kits being absent in the formula student workshop, incomplete training and incorrect storage of chemicals and oils in some locations. OFIs included recommendations to improve training records and streamline documentation.

In February 2022 NQA auditors conducted the ISO 14001:2015 external surveillance audit of our EMS. This five-day audit was undertaken remotely and identified one MiNC and three OFIs, a brilliant result for BCU. The findings were linked to:

- MiNC: the wording of the EMS scope on the certificate differed to that on the EMS Index.
- OFIs: review the process for identifying resource requirements, training requirements, and top management approval of key documents.

The auditor also shared some positive feedback. They were particularly impressed with the levels of environmental awareness amongst staff, the internal audits, BCU's waste management processes, and efforts to embed sustainability into the curriculum.

Actions have been taken to address the findings from the peer and external audits to support our continual environmental improvement and compliance.

Internal audits were conducted by the Environmental Team of Doug Ellis Sports Centre, the Pavilion and Joseph Priestly building. As a result of these internal audits, improvements have been made to waste management by installing additional external recycling bins and reducing

pollution risk/increasing safety through increasing spill kit and PPE provision where required.

A new 6-year internal audit programme has been created, that considers the environmental risk level of BCU buildings to decide audit frequency. Spill response and waste documentation training has been updated and disseminated to relevant teams.

Going forward we will:

- Implement the new internal audit programme.
- Carry out a peer audit in November 2022.
- Maintain certification to ISO 14001:2015 in January 2023 when the recertification audit takes place.
- Review additional EMS training requirements.
- Improve the process for identifying resource requirements for actions to meet EMS objectives.
- Update the Environmental Plan.
- Review Environmental Committee membership to strengthen decision making.



OBJECTIVE 1: EMBEDDING SUSTAINABILITY IN OUR PROCESSES



Procurement

Objectives and Targets	Status
Maintain Level 4 of the Flexible Framework throughout 2020-25, exploring the option of achieving Level 5 or moving to ISO 20400:2017 should it become a formalised accreditation.	Achieved
From 2020 onwards, all procurements over £60k require a Sustainability Impact Assessment (SIA), which considers environmental, economic and social impacts, and a light-touch process in place for contracts below £60k.	Achieved and ongoing
All strategic and operational suppliers will have a sustainability action plan by 2025 and are being monitored to ensure delivery.	In progress

Progress update:

During 2021/22 the Procurement Team moved away from paper sign-off approval to Docusign. To date this move has saved 3.6 tCO₂e from paper use.

Several tenders with a strong sustainability focus have commenced in 2021/22 but will complete in 2022/23 including the catering and BMS consolidation.

Strategy: Category strategies are regularly reviewed on an individual project basis and will incorporate an environmental priority score and align to sustainable development goals with the help of a tool that is being developed for use from winter 2022. The procurement policy is currently being refreshed and will continue to reflect BCU's sustainable procurement aspirations.

Training and NETpositive Futures: All sustainable procurement training is up to date for all team staff. Several new team members that are due to join in late 2022 will be trained on arrival.

Procurement process: Sustainability Impact Assessments (SIAs) are included in the procurement strategy for all procurements over the value of £60k. A new tool being developed will help category managers apply an environmental impact score to each procurement. The impact score will help determine the weighting that sustainability should be given during the assessment of a tender.

Supplier engagement: Throughout 2021/22 the Procurement Team has engaged with new suppliers to ensure they complete their registration to the NETpositive Futures toolkit, which has now become a mandatory requirement.

Measurement: The category and contracts assistant has carried out in-depth analysis of the data captured by the NETpositive tool, including identifying BCU's top 20 suppliers across all categories. From this analysis it's been possible to identify which suppliers are reporting on carbon emissions reductions, setting challenging net zero targets, and enhancing biodiversity at their sites. Next steps will include drilling down into this list to identify what those suppliers can offer BCU in terms of product level carbon emissions data and detailing what actions they are taking to reduce their product and organisational emissions.

The Procurement Team monitors progress against KPIs for the top 20 spend contracts.

Going forward we will:

- Follow up on NETpositive Futures toolkit findings.
- Ensure the sustainability impact assessment is reflected on throughout the procurement process.
- Establish a bank of core sustainability quality questions.

OBJECTIVE 1: EMBEDDING SUSTAINABILITY IN OUR PROCESSES



Projects and other processes

Objectives and Targets	Status
By 2025 all University decisions taken at its main governance committees explicitly address sustainability as part of the assessment process.	In progress
Ensure sustainability has been integrated in project management template documents.	In progress
Complete a mapping exercise to identify further University processes to embed sustainability.	Ongoing
Develop and implement an ethical investment policy for BCU.	In progress
Review how sustainability links to and can be incorporated in the new IT strategy	Ongoing
Achieve the AIM Accreditation for our Events Management by 2021, which includes a section on sustainability, and work towards making our events more sustainable.	Achieved

Progress update:

Committees: Changes to BCU's governance structure has seen the introduction of Estates, Portfolio, and Technology Boards during 2021/22. The Environmental Committee minutes are submitted to the Estates Board as a standing agenda item. The Environment Team also regularly provides updates to the Estates Board on project and strategy work.

Project Management Documents: The Environment Team continue to work closely with the Transformation Team to embed environmental sustainability considerations into BCU's project management documentation. For example, business cases and investment requests must now be reviewed for environmental impacts.

Mapping exercise: During 2021/22 the Environment Team has worked closely with the Strategy Manager. Environmental sustainability has been identified as a key area to be reflected in all BCU's strategies. Work will be ongoing throughout 2022/23 to liaise with strategy holders and the Strategy Manager to ensure there is alignment and environmental sustainability is embedded throughout the organisation. Additionally, this is an opportunity to ensure key activities are captured in the refreshed environmental plan.

IT projects: BCU employs computer power down software called Verdiem. This software optimises power management and during 2021/22 it saved BCU in the region of £49k. The software currently covers 5377 pcs, from 2022/23 BCU will increase the number of licences to cover more of its computers.

As part of IT's contract with Lenovo the emissions associated with the manufacture of the laptops bought by BCU is offset through ClimeCo. During 2021/22 this covered 1,560 tCO₂e.

A collaborative project to consolidate all BCU's building management systems was started in 2021/22. IT and Estates are working together to deliver this project, with regular progress updates being reported to the Technology Board. This project links into the cyber security and the network refresh that is being carried out across the estate.

Ethical investment: An Ethical Investment Policy has been developed by BCU, which outlines BCU's commitments to ensure that investments match BCU's sustainability priorities and values, and consider ethical, environmental, corporate governance and social issues. This includes ensuring ethical restrictions are applied and no investment or holding is held in fossil fuels. The policy was considered at Finance Committee in March 2022.

AIM Accreditation: BCU maintains its AIM Secure accredited membership of the Meetings Industry Association. AIM Accreditation is the UK's only recognised quality standard for the meetings industry. Through achieving this standard, BCU and its Events Team are demonstrating operational excellence and a commitment to continuous improvement. Part of the accreditation requires a commitment to protecting the environment including reducing single use plastic, reducing waste through efficient purchasing and reducing energy and water use where possible. BCU's Events Team continues to work closely with the catering partner to deliver low impact events, with a specific focus on avoiding plastic bottles where possible.

Going forward we will:

- Create a measurement and verification plan for identifying savings from the BMS consolidation project.
- Deliver the BMS consolidation during 2023.
- Increase the number of computers covered by the Verdiem power down software.
- Liaise with strategy holders throughout 2022/23 and embed environmental sustainability when strategies are refreshed.

OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



Biodiversity

Objectives and Targets	Status
Measure the baseline of our biodiversity on campus by summer 2020.	Completed
Using the ecological survey report, develop a Biodiversity Action Plan (BAP) for BCU to maintain the number of species and habitats, and where feasible increase these.	In progress
Maintain, and where feasible, increase food growing sites around campuses by 2025 from 2020 provision	Maintained provision

Progress update:

A draft publishable version of the Biodiversity Action Plan (BAP) has been developed and the actions have been presented to the Estates & Facilities Senior Management Team. The Environment Team are working with FPCR Environment and Design Limited (FPCR) to finalise the BAP, including gathering more data to strengthen the targets. FPCR have begun conducting the additional ecological surveys that are recommended in the BAP, which will be completed in 2022/23. These include:

- Great Crested Newt eDNA surveys of the City South Campus ponds.
- Reptile surveys at City South Campus, Doug Ellis and the Pavilion.
- Additional breeding bird surveys at all sites.

The Grounds Team have continued to carry out work to encourage biodiversity on campus. An additional wildflower meadow has planted near Seacole Building. A memorial garden that was at Ravensbury was moved to Seacole. Extensive pollarding work was undertaken on the Lombardy poplar at the Pavilion. During 2021/22 wildflower seed mix has been sown in planters around Curzon Building and the area behind Joseph Priestley Building and several office plants have been installed in STEAMhouse Building. The team also supported a commemorative tree planting event to celebrate the renewal of the Navitas and BCU partnership.

BCU was awarded Hedgehog Friendly Campus (HFC) Silver in January 2022. To achieve this staff and students conducted hedgehog footprint surveys, took part in the Big Hog-Friendly Litter Pick Challenge. Habitat improvements were also made including leaving log piles around campus, developing low intervention green spaces filled with hedgehog friendly plants.



OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



Biodiversity

100 jars of honey were collected from the beehive on the Parkside Building link bridge and sold in our campus shops as BeeCU honey. The profits from the sales went to the 'Bees Abroad' charity. School of Art PhD student Laura Cooper's work with the beehives was communicated to staff and students on World Bee Day. Laura's research focuses on the translation of human animal relationships through modes of artistic practice, filmmaking and exchange. They are also creating an experimental film project, documenting the urban bee-plant relationships at BCU and within Birmingham City Centre.

The food growing site on the Curzon Building terrace has been maintained and additional food growing is now taking place on the University Locks terraces, including vegetables and herbs.

The City South redevelopment project brief highlights the requirement to deliver biodiversity net gain. Work is also underway on planting schemes for the temporary use of the area behind Joseph Priestley Building as an outdoor events space, with a focus on edible planting.

Going forward we will:

- Finalise the BAP and issue to Senior Management for review and approval.
- Complete the additional ecological surveys and update the baseline report.
- Maintain Silver HFC accreditation and start working towards Gold.
- Install more hedgehog houses.
- Include a biodiversity design code within the BCU Sustainable Building Standard.
- Install more compost bins at City South Campus.
- Build a polytunnel at City South Campus and plant herbs in the courtyard area next to the restaurant.



OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



Catering

Objectives and Targets	Status
Deliver our Sustainable Catering Policy and Targets.	In progress
Embed sustainability as a core requirement in the tender of the catering contract in 2020/21, developing a new Sustainable Catering Policy and Targets for the duration of the contract (2021/26)	In progress

Progress update:

Due to a delay with the tender for the new catering contract, the Sustainable Catering Policy and Targets have been extended to cover the remainder of BCU's current catering contract with BaxterStorey. The policy and targets will be refreshed when a new contract is in place, which will likely occur in 2023.

Unfortunately, due to the impacts of Covid-19, and resourcing issues, BaxterStorey have not maintained the bronze Food for Life award in 2022. However, they are working to renew the certification and have taken multiple measures to improve the sustainability of operations in the meantime.

Reusable cups are now in full use and promoted across all outlets, as are Eco-to-Go reusable boxes. BaxterStorey took part in BCU's first Waste Awareness Week (March 22), with a stall at the City Centre and City South Campus roadshows, as well as running deals throughout the week, with discount given on meals if an Eco-to-Go box was purchased. They also worked closely with the Environmental Team on Fairtrade Fortnight activities, as detailed in the engagement, communications and training section.

BaxterStorey have been working with Forward Food, an international campaign to equip chefs with the knowledge, skills and enthusiasm needed to develop exciting and satisfying plant-based dishes. Forward Food have delivered training workshops to BaxterStorey staff, with plant-based samples given away at their outlets.

They also celebrated Veganuary with a variety of activities including:

- Plant-based food on a budget cooking demonstrations and tasting sessions.
- Vegan home baking stall roadshows.
- A talk on how to make more environmentally friendly food choices, delivered by renowned Forward Food chef Jenny Chandler.

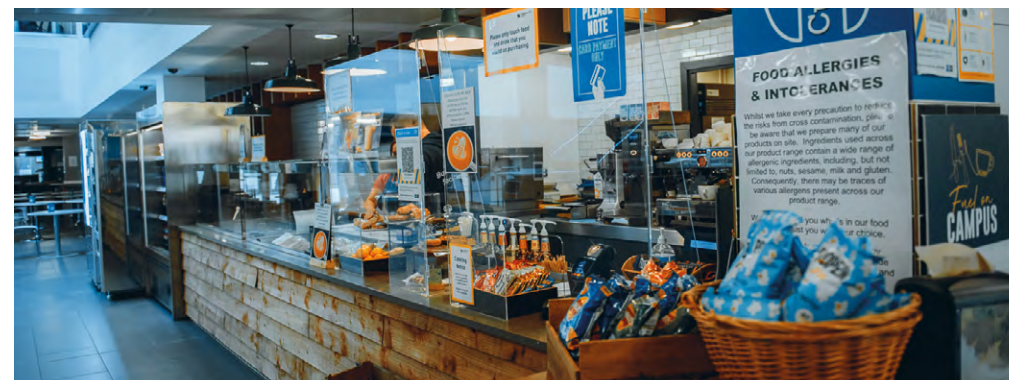
An indoor herb planter was installed at Curzon building in June 2022 and the Gardening Team are working to install pots of herbs in the courtyard next to the main Seacole outlet.

The Environmental Team has provided content for the tender of the new catering contract, in the form of a minimum sustainable catering requirements appendix. This was based on extensive research and ideas were discussed at an Environmental Committee meeting. There are minimum requirements relating to the following areas:

- Accreditations and certifications
- Food sourcing and provision
- Waste management
- Plastics and packaging
- Energy, water and carbon
- Procurement and suppliers
- Events and corporate catering
- Communication

Going forward we will:

- Deliver the current Sustainable Catering Policy and Targets.
- When they are in place, work with new contractor to develop an updated Sustainable Catering Policy and associated targets and actions.
- Increase sub-metering to catering outlets to collaborate on energy and water consumption reduction.



OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



Energy and Carbon

Objectives and Targets	Status
Reduce our scope 1 and 2 carbon emissions by 43% by 2020/21 (absolute and by FTE students and staff targets) against a 2005/06 baseline year	Achieved
Continue to purchase 100% renewable energy (both electricity and gas)	Achieved
Increase onsite energy generation from 2020 levels by 2025.	In progress
Review what is required to achieve a net zero carbon University before 2050 and start the delivery of actions to achieve this by 2025.	In progress
Throughout 2020/25, improve the capture of scope 3 carbon emission data for reporting, and setting associated goals for reporting and net zero carbon work.	In progress

Progress update:

BCU met the HEFCE carbon emissions reduction target in 2020/21. Since then, BCU has been developing its approach to reaching net zero carbon emissions before 2050. A target date is yet to be agreed but it is hoped that this will be approved by early 2023.

Scope 1 & 2 emissions (emissions related to electricity, gas, refrigerant leaks, and petrol and diesel consumption) for 2021/22 are 7383 tCO₂e. This represents a 9% reduction compared to 2020/21. Figure 1 illustrates how BCU's emissions have fallen since 2005/06. This year's reporting is the first year in which BCU is reporting its emissions associated with refrigerant losses (fugitive emissions). Including this figure better captures BCU's total emissions footprint for scope 1 & 2.

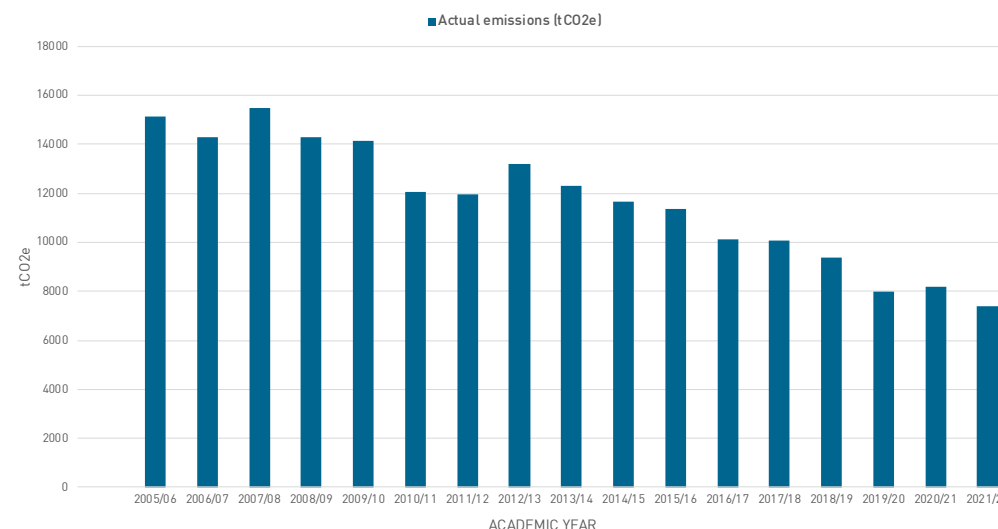


Figure 1: emissions reductions 2005/06 to 2021/22.

There remains an absence of a sector-wide target on carbon emissions reduction, with each organisation setting its own target to reach net-zero carbon emissions. Before the government enacted the net zero by 2050 target into law, BCU had aligned its ambitions with the BEIS 50% emissions reduction by 2030 against a 2009-10 baseline target. As the government is now committed to the more stretching net zero target the BEIS target is no longer valid, and BCU won't continue to report against it. The Environmental Plan is due to be refreshed in 2022/23 and this change will be reflected in that update.

OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



Energy and Carbon contd.

Table 1 – BCU's total emissions footprint for 2021/22 compared to 2020/21

Scope	Area	2020/21 tCO ₂ e	2021/22 tCO ₂ e
1	Gas	4636	3801
1	Other gases	0	0
1	Petrol	2	0
1	Diesel	5	5
1	Gas oil	0	33
1	Fugitive emissions	0	76
2	Woodchip	0	1
2	Electricity	3598	3468
Sub-total (scope 1 & 2)		8241	7384
	Solar - generated electricity (avoided emissions)	13	16
3	Purchased goods and services	21982	27803
3	Construction	10195	2974
3	Water and wastewater	17	29
3	Business travel - air travel	84	283
3	Business travel - rail travel	1	8
3	Commuting - staff	2891	2891
3	Commuting - students	7648	7648
3	Waste	5	8
3	Electricity transmission and distribution	318	317
3	Electricity WTT	570	905
3	Gas WTT	505	657
Sub-total (scope 3)		44216	43523
TOTAL tCO₂e (all 3 scopes)		52457	50907
Outside of scopes	Woodchip	0	47

Table 1 shows BCU's emissions footprint over the last two years for comparison.

The gas oil emissions are due to a gas boiler failure at Ruskin Hall. A temporary gas oil boiler was installed. This has now been rectified and gas oil emissions should be removed during 2022/23.

Indirect carbon emissions (scope 3) measurement is becoming more robust as BCU improves data quality and collection methods. Commuting figures are calculated from returns to the travel survey, which was last conducted in 2018, therefore the figures do not reflect the change in working patterns brought about by the pandemic. A clearer picture will emerge after the travel survey is carried out in November 2022.

Further detail about changes related to transport emissions are discussed in the transport section.

Throughout 2021/22 the engineering team has worked hard to repair biomass boilers (at Curzon and Parkside). The Parkside boiler has now been recommissioned and will be operational during the winter 2022. As the biomass boilers have been recommissioned the emissions due to the use of woodchip have increased, these will increase further during 2022/23, but will be offset by the reduction in natural gas emissions. Supply chain data is not available until later in the year. 2020/21 data remains the most recent data available.

Several energy efficiency projects were started in 2021/22:

- Building management system consolidation. The project will migrate all building management systems on to one common platform and will bring significant energy savings in 2023 when the project is delivered.
- Decarbonisation feasibility reports were commissioned for The Pavilion and Seacole. These reports have formed the basis for an application for grant funding to the Public Sector Decarbonisation Scheme. If successful, both buildings will undergo lighting refurbishment, fabric improvements, solar panel installation, and have their gas boilers exchanged for air source heat pumps. These projects will be the start of a rolling programme to decarbonise BCU's estate.

OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



Energy and Carbon contd.

The Student Switch Off campaign continues at University Locks. The NUS campaign focuses on encouraging student action on climate change. Over the course of the year, they engaged with around 60% of the residents and included training on energy efficiency.

The energy crisis started in late 2021 just as BCU needed to enter a new contract. The crisis has had a significant negative impact on the energy budget since then. However, the flexible purchasing undertaken at the start of the contract has protected BCU from further volatility since the invasion of Ukraine. BCU is now looking to a longer-term contract for both gas and electricity starting 1st April 2023.

BCU continues to engage with the Department for Business, Energy and Industrial Strategy on the city-wide development of a decarbonised heat network and will incorporate this work into planning for the future of the estate.

Going forward we will:

- Agree net zero targets.
- Deliver the building management system consolidation project.
- If successful, work to deliver the Public Sector Decarbonisation Scheme projects.
- Work up application ready projects for the rest of the estate for future rounds of decarbonisation funding.
- Procure gas, electricity and water contracts during 2022/23.
- Advise on low carbon requirements for the development of City South.
- Deliver an historic bill validation cost recouping exercise, due to complete early 2023.
- Continue to improve data capture.



OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



Environmental management and compliance

Objectives and Targets	Status
Zero major non-conformances due to a compliance obligation breach.	Achieved
From 2020/25, complete the marking of manhole covers with correct identification across the estate, to include drainage CCTV inspections to all PPM maintenance contracts.	In progress

Progress update:

There have been no major non-conformances in our ISO 14001:2015 EMS due to a compliance obligations breach.

ClearLead Consultancy made additional improvements to the BCU environmental compliance register and provided an environmental legal update presentation. They conducted a compliance evaluation in January 2022, interviewing relevant staff and reviewing documentation. They updated the evidence of compliance for all relevant legislation (and other requirements) and identified opportunities for improvement, which are being implemented.

There have been refrigerant gas leaks reported from equipment at Conservatoire and Curzon Building during 2021/22. These fugitive emissions equate to 76 tonnes CO₂e and are reported as part of BCU's overall emissions footprint.

Contractors have undertaken asset validation, to ensure that every piece of building services equipment is on a planned maintenance schedule. This is now on CAFM (a computer aided facility management system) so compliance can be more easily tracked. Regular meetings are taking place with contractors to ensure that compliance related documents are received on time.

Manhole covers at Seacole have been labelled to identify the drain type (foul/surface) and the related drainage plans are being updated.

Going forward we will:

- Continue to implement the compliance related opportunities for improvement identified by ClearLead.
- Commission contractor to label drainage (foul/surface) at another site.
- Continue to work closely with the Engineering Team to tighten operational control of building services.



OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



Sustainable Buildings

Objectives and Targets	Status
Achieve an EPC rating of 'A' on all new builds.	Ongoing
Achieve BREEAM 'Excellent' as a minimum for all new builds.	In progress
Deliver BCU's Sustainable Building Standard for all new builds and refurbishments from 2020-25.	Ongoing

Progress update:

City South: The Environment Team worked closely with the Project Team and Director of Estates and Facilities to embed environmental sustainability in the initial project brief for the City South re-development. The project brief highlights the requirement for a low carbon building with high levels of onsite energy generation. It also underscores the planning requirement to increase biodiversity net gain by at least 10%

During 2021/22 the team also inputted into the development of the Office for Students bid, which was focused on the development of the oldest part of the Seacole Building.

Plot C: The unused land behind the Joseph Priestley Building has been developed into an outside catering area. The Environment Team provided advice on integrating biodiversity and wildflower planting on the plot.

Decarbonisation of heat: BCU has made an application to the Public Sector Decarbonisation Scheme. This fund exists to help public sector organisations reach net zero. The primary focus is on decarbonising the provision of heat in buildings. BCU's initial application focuses on two buildings. Further feasibility reports will be commissioned during 2022/23, which will form the basis of further applications for funding.

Going forward we will:

- Continue to embed sustainability into new build and refurbishment projects, working closely with the Project Team.
- Make the business case for delivering lighting refurbishment as part of the agile upgrade of Joseph Priestley Building.
- Update and align the Sustainable Building Standard to net zero and biodiversity net gain requirements.

- Report progress on central Seacole and Pavilion net zero refurbishments throughout 2022/23 through the governance structure, should BCU be successful at securing Public Sector Decarbonisation Scheme funding.



OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



Transport

Objectives and Targets	Status
Encourage and increase staff, student and visitor sustainable travel through the implementation and two-yearly refresh of the University Travel Plans. Specific targets outlined in the Travel Plans.	In progress
Improve the capture of business travel information through any travel procurements from 2020/25.	In progress
Review and agree an approach to post-combustion engine vehicles for BCU.	In progress

Progress update:

Travel Plans:

Travel surveys were due to be undertaken in March 2020, however, due to Covid-19 it was decided to delay the next travel survey until November 2022.

Previous BCU travel plans have focused on commuting, but the new travel plan will take a more holistic approach and incorporate wider travel associated with BCU such as business travel and international student travel between family homes and campus.

In the meantime, an Interim Travel Plan (ITP) has been developed and published to ensure that BCU is still encouraging the use of sustainable transport, and agile ways of working and studying. BCU achieved Modeshift STARS green accreditation, a scheme that supports the delivery of effective travel plans and provides recognition for organisations that have shown excellence in supporting cycling, walking and other forms of sustainable and active travel.

Further actions taken during 2021/22 include:

- Selfie competition on Cycle to Work Day.
- Transport for West Midlands and National Express had stalls at the Welcome Fair.
- As part of Go Green Week, Dr Bike sessions were organized and BCU Security and the BCU Police Liaison Office provided advice about bicycle safety and security and sold discounted D-locks and bike registration kits.
- Promoted cycle route consultations.

- During Bike Month, promoted various initiatives such as WM Cycle Hire scheme, Brum by Bike, British Cycling Let's Ride programme and Cycling UK's useful webinars.
- Cycle security and safety events were also run during Bike Month at City Centre and City South Campus.
- Advice was provided for travelling during the Commonwealth Games and dates of rail strikes were communicated.
- Ongoing communications in the Bicycle User Group.
- Electric Vehicle Charge Points – a feasibility study was undertaken for City South Campus and Harborne Road. The planned City South Campus development has delayed progress as there will likely be changes to land use.
- Business Travel Policy Working Group was established, and a draft policy created in May 2022. This includes a sustainable travel hierarchy and business travel decision tree to encourage a reduction in carbon emissions from business travel.

Business travel data – air and rail:

Business travel has not increased to pre-Covid-19 levels, though mileage is higher than in 2020/21, as shown in figures 2 and 3. 2021/22 saw an 89% reduction in air miles and flight carbon emissions compared to 2018/19. This is a reduction in carbon of 2,272 tCO₂e compared to the last normal year of operation in 2018/19.

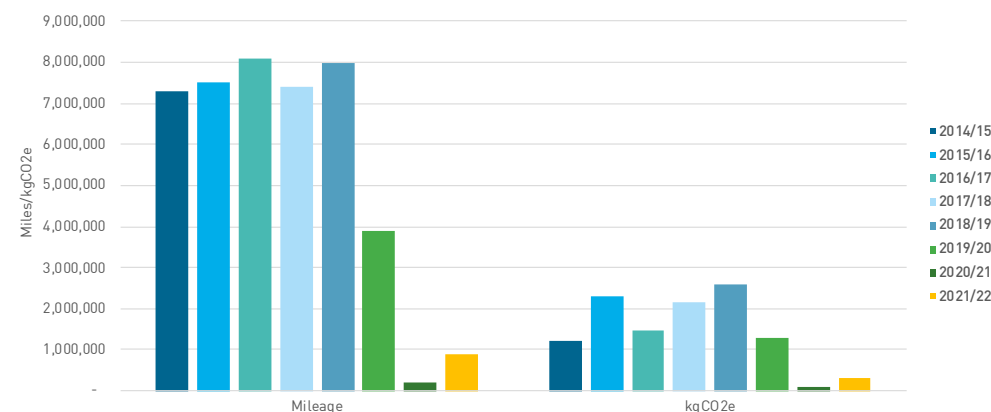


Figure 2: BCU business travel air mileage and carbon emissions

OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



Transport

Like air travel, rail business travel has increased in 2021/22 compared to 2020/21, however there is still a huge reduction from 505,000 miles in 2018/19 to 132,000 miles in 2021/22. This has reduced rail carbon emissions from 33.4 tCO₂e in 2018/19 to 7.5 tCO₂e in 2021/22. For the first time, the rail data included some Eurostar journeys as well as domestic rail.

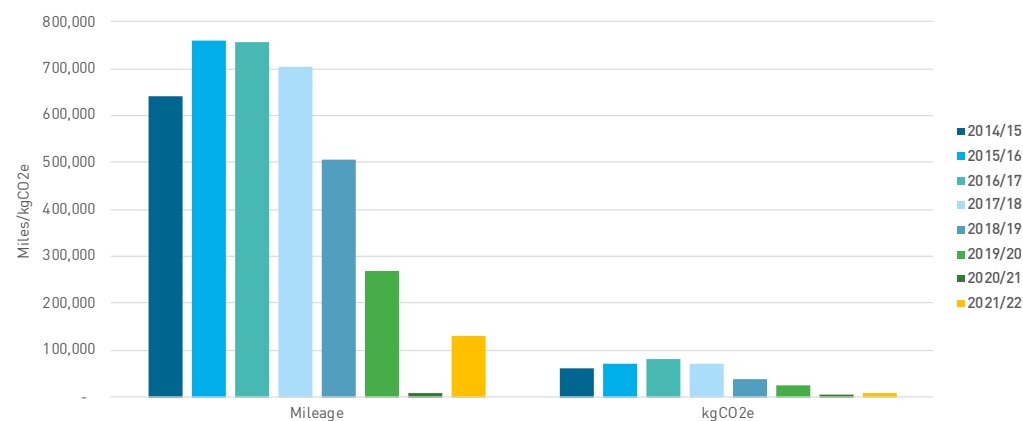


Figure 3: BCU business travel rail mileage and carbon emissions

Going forward we will:

- Update the Interim Travel Plan to also cover 2022/23 and complete the relevant actions.
- Run a travel survey in November 2022.
- Continue to improve data capture associated with business travel and commuting.
- Develop new travel plans for BCU to cover 2023/25.
- Further develop the draft business travel policy, with a proposal issued to Senior Management for review and approval.
- Continue to review the BCU Brompton Bike Scheme.



OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



Waste and recycling

Objectives and Targets	Status
Reduce the amount of waste generated year-on-year by 1% by 2025 from a 2018/19 baseline.	Not met
Increase recycling rates annually by 2% per year by 2025 from a 2018/19 baseline.	Achieved
Maintain zero waste to landfill (excluding waste from building projects).	Achieved
Establish and maintain a Waste Task Group at BCU throughout 2020/25 to continue to identify areas of waste prevention and reduction and increase recycling.	In progress

Progress update:

The 2021/22 waste data includes the figures for paper recycling, which is collected as confidential waste by a bespoke waste contractor. The data for 2020/21 has been updated to include the paper recycling figures too, as this data was not available when the previous annual report was produced.

2021/22 saw a 25.2% increase in total waste generated when compared to 2020/21 across all academic and accommodation buildings, albeit this is still 44% lower than the baseline figure of 2018/19. Figure 4 demonstrates the changes in waste quantities across the last four academic years, from the drastic reduction in 2019/20 to the steady increase in quantities in 2021/22.



Figure 4: general waste and recycling tonnage from 2018/19 to 2021/22

The increase from 2020/21 to 2021/22 is directly correlated to footfall on campus, with more students returning to face-to-face teaching and staff returning to the workplace. Although, due to partial lockdown conditions throughout this period, footfall was still significantly lower than pre-Covid numbers.

During 2021/22 the recycling rate has dropped back to 47% from 57% in 2020/21 for academic waste and from 23% in 2020/21 to 14% for accommodation waste. This can partly be attributed to clear outs of office space taking place across campuses in preparation for agile working and reconfigurations of space such as the Seacole clinical skills corridor refurbishment.

Regarding progress against the 2% increase in recycling target year-on-year, the total combined recycling rate reduced from 50% in 2020/21 to 41% in 2021/22.

OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



Waste and recycling contd.

Waste reduction and recycling initiatives:

In March 2022, BCU held its first Waste Awareness Week where BCU waste and cleaning contractors raised awareness of waste and recycling across BCU with staff and students. During the week staff and students took part litter picks at City Centre and City South campuses. Following the litter picks a waste segregation session determined what could have additionally been recycled. Feedback received from the events is being used to inform future engagements on waste.

Food Waste Action Week was promoted, with Veolia providing infographics showing the journey of BCU's food waste to the local anaerobic digestion facility, where electricity and bio-fertiliser are produced.

During 2020/21, paper bins were removed and replaced with confidential waste consoles to ensure that all paper waste was treated confidentially. Feedback from a survey of staff and students during Waste Awareness week, showed that many people did not believe BCU recycled paper on campus. It highlighted confusion around paper recycling with many stating that they thought the confidential consoles were solely for use by staff and only for confidential papers. As a result of this feedback, paper bin signage has now been redesigned to encourage all paper to be recycled. This signage will be installed during Q1 of 2022/23.

Housekeeping clearance projects in preparation for agile working have been undertaken at City South Campus and Joseph Priestley Building. Libraries and departments, such as Midwifery, have also carried out storage clearance in preparation for the refurbishment of Clinical skills. An additional 24.2 tonne of paper has been recycled as a result of the clearances across the University, which equates to savings of 411 trees, 169,400 gallons of water and 101,640 KWH of energy.

BCU has worked in partnership with ISS, our cleaning contractor, to identify areas for improvement. This has included ISS reporting hotspots where recycling is being contaminated. ISS are also trialling chemical free cleaning using 'Tersano', which uses ozone to clean and sanitise. Other initiatives ISS have undertaken include investment in low power consumption machinery, the use of microfibre cloths, and sustainability training for all staff.

Praise was received from Veolia, our waste contractor, who commented that BCU's recycling is the best it has ever seen. Positive feedback around waste management and associated robust documentation was also received from the ISO14001 auditor when carrying out the external EMS certification.

The Grounds and Gardening Team play a key role in reusing or composting green waste created from around campuses. Additional compost bins have been built at the City South campus with plans to install compost bins into the City Centre, helping to reduce the quantity of green waste sent to contractors for disposal and therefore reducing both cost and carbon emissions.

The Waste and Resources Task Group (WRTG) is due to have its first meeting in Q2 of 2022/23. Terms of Reference have been agreed for the group and initial project ideas have been collected from BCU's Environmental Champion network. The WRTG will work closely with the new catering provider to assist with better food and packaging recycling. Other projects the group will explore include coffee cup recycling and reverse vending machines.

The roll out of food waste caddies in staff and student kitchen areas has been completed at the City Centre campus. All caddies have been purchased and labelled ready to be used at City South and satellite sites and will be installed in Q1 of 2022/23.

BCU continues to recycle all redundant IT and electrical equipment via our WEEE waste contractor and 10% of all rebates are donated to Birmingham and Solihull Women's Aid. For the first three quarters of 2021/22 to date £3166.27 has been donated with Q4 yet to be calculated.

Further promotion of waste 'good news' stories is planned for 2022/23. This will include a waste stream topic per month advertised on internal communications, TV screens and intranet sites to show in video and pictorial format the journey of BCU's waste.

Going forward we will:

- Roll out paper recycling console signage.
- Start the Waste and Resources Task Group meetings.
- Food waste caddy roll out at City South Campus and satellite sites.
- Run a second Waste Awareness Week.
- Promotion of ongoing waste 'good news' stories across digital med.



OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



Water

Objectives and Targets	Status
Install water meter loggers and establish a baseline of water consumption for 2019/20	Achieved
Once a baseline is established, develop a water reduction target and approach to reduce water consumption and associated carbon emissions by 2025	Achieved

Progress update:

Figure 5 shows the change in water consumption split by residential and non-residential since 2008/09. During 2021/22 water wastage (water that is used due to faulty appliances and leaks) has dropped by 3%. Further work is required to reach the interim target of a 5% decrease. During 2021/22 an investigation of excessive water consumption was carried out at Seacole Building and several faults were identified, which have led to water savings of around £5k a year.



Figure 5: comparison of annual water consumption split by residential and non-residential, 2008/9 to 2021/22.

The Pavilion, STEAMhouse, and Harborne Road all now have water loggers attached so consumption can be remotely monitored.

An approach has been developed for reducing water consumption across the estate. As the second largest water consuming building, with the highest level of water wastage further investigation will be initially focused on Seacole Building.

The current water retail contract is due to be renewed in October 2023 and the water meter data logger contract is due for renewal in November 23.

Going forward we will:

- Procure a new water retail contract before 1st October 2023.
- Procure a new data logger contract before 1st November 2023.
- Ensure further sub-metering upgrades are completed as part of the building management system consolidation work.
- Continue to carry out water audits across the estate.
- Carry out investigations at Seacole to identify source of water wastage.



OBJECTIVE 3: CREATING A GREEN CULTURE IN BCU, LOCALLY AND GLOBALLY



Curriculum

Objectives and Targets	Status
Sustainability has been integrated as a requirement in the course approval form	In progress
By 2025 every course has been assessed for sustainability, using the SDGs as a framework, via the Periodic Review.	In progress
Develop and deliver a new SEDA accredited course for staff on Embedding Sustainability in the Curriculum by August 2020.	Achieved

Progress update:

BCU's work on embedding sustainability in the curriculum was recognised in the 2021 People and Planet University League, with a score of 95% for education for sustainable development (compared to 10% the year before).

The BCU 'Embedding Sustainability into the Curriculum' SEDA (Staff and Educational Development Association) course did not run in 2021/22 due to resourcing issues, but information about the course and BCU's journey on embedding sustainability in the curriculum was presented at the Advance HE Sustainability Symposium in March 2022: 'From individual action to transformative change - the value and impact of working together'.

The Environment Team continues to develop and support the BCU sustainable curriculum community of practice, sharing resources in the Teams group, such as Embedding Sustainability into the Curriculum guidance. Colleagues are also encouraged to ask questions and share their ideas in the Microsoft Teams group, which currently has over 85 members. A BCU workshop has also been developed, that introduces education for sustainable development.

Several workshops on education for sustainable development have been delivered during the year, including an 'Introduction to Embedding Sustainability in Education' and 'Decolonising, Decarbonising and Democratising Education', both were run by Students Organising for Sustainability UK (SOS-UK):

This is the first year that BCU has received organisation specific data from the NUS/SOS-UK sustainability skills survey. The survey is not promoted as a sustainability related survey, so as not to bias the results. The survey highlighted that BCU students care about sustainability; 82% of students surveyed believe that sustainable development is something that all courses should actively incorporate and promote.

Staff participated in the SOS-UK's Sustainable Development Goal (SDG) Teach-In. This a campaign to put the UN SDGs, and sustainability, at the heart of all stages of education across all disciplines and calls on educators to include the SDGs within their teaching, learning and assessment. Staff pledge to include the (SDGs) in their teaching and learning during the Teach-In.

The following are some examples of sustainability being embedded into the curriculum:

- The Master's module, 'Art and Ecology: Creative Interventions', ran twice in 2021/22. The Environment Team delivered lectures titled on the art of sustainability as part of the module. The module focuses on inspiring a socially engaged response ecological 'site' by adopting unfamiliar research methods from science and art. This Arts and Science module is one of the first of its kind at BCU and the structure, tools, and methods inspired new directions for students.
- The Foundation Fashion & Textiles course encourages the reuse/recycling of materials. For the first time in 2021/22 the Environmental Officer delivered a talk about environmental sustainability at BCU and ran a sustainability competition as part of the students' first project, with judging occurring during Go Green Week.
- The new core module 'Writing and the Environment' for second-year students ran for the first time in 2021/22. Students enhance their understanding of how reading and writing impacts how people think, feel, and behave, and they explore how literature has long participated in crucial debates about the relationships between people, nature and technologies.
- The MA English Literature centres on a module 'Literature and Place', which encourages students to think about how literary writing responds to, and creates, the places we inhabit and move through.
- The School of English ran a virtual conference in November 2021, entitled 'Literature, Place and Space'. The conference explored the ways in which literature responds to environmental change, including apocalyptic and fictional responses to climate change, poetry, and nineteenth- and twenty-first-century engagement with cities.
- Each module across the Fashion Business and Promotions BA Hons course has had an SDG assigned to it. From September 2022 students will encounter all the goals throughout their course and graduate with a well-rounded understanding of them. The SDGs stimulate problem-solving by putting issues into relatable contexts within students' work.
- The SDGs have now also been built into all modules for Fashion Design, Costume Design and Garment Technology students

OBJECTIVE 3: CREATING A GREEN CULTURE IN BCU, LOCALLY AND GLOBALLY



Curriculum contd.

- BCU lecturer Hilary Weston Jones has been accredited by BAFTA to deliver their Albert sustainability training to media students. At present this is a voluntary activity, however over 160 BCU students have already successfully passed the training and it may be embedded in the Media Production degree.
- The Sustainable Growth Garden is an initiative in the School of Fashion and Textiles. Now in its second year, the number of planters and varieties of dye plants has been extended, now growing weld, coreopsis, indigo and madder. Staff and students have been involved in seed planting, and an inclusive sustainability student action group has been set up, with students from across the Institute of Jewellery, Fashion and Textiles, who can get involved with the garden and other events.
- The Fashioning Futures Team in the School of Fashion and Textiles have been running guest lectures and workshops for more than five years, with a focus on bringing in experts from industry who are innovating in sustainability to inspire the next generation of students. They are currently collaborating with Mat.Er lab, and the Growth Garden to give students a hands-on and holistic introduction to sustainability.
- As part of Fashion Revolution Week, a Swap Social took place, to encourage students and staff to swap clothes. Upcycling and mending workshops were also held, and the Swap Social will become a regular event.
- Fashion Branding and Communication students were encouraged to take part in a fashion detox challenge, a project created by an academic as part of their work for the BCU 'Embedding Sustainability into the Curriculum' SEDA course. In connection with Sourced Vintage archive the challenge involved discussions on fast fashion and tasking students to create trends for Autumn/Winter 2023 using vintage/secondhand clothing solutions.
- The School of Art is operating a 'scrapstore' scheme where materials are collected from across BCU, businesses in the city, artist studios, graduating students and the school workshops, to offer current students a free source of eclectic materials. This offers a solution to the rising cost of art materials for students and creates a recycling scheme for hard to recycle items which have included, picture frames, wheels, fabric scraps and a horse-riding saddle!
- Industrial partner Continental Engineering Services (CES) of Lichfield have co-developed curriculum and materials to introduce electric vehicle technologies to CEBEs automotive engineering courses.
- The School of Jewellery's new module 'Ethics and Sustainability in the Jewellery Industry' incorporates a project to create a 'Manifesto for Best Practice'. Incorporating the SDGs, the aim is to produce a podcast addressing the final customers of luxury jewellery. Going forward, this work will be incorporated into the recently validated module Responsible,

Ethical and Sustainable Developments, which will be delivered to Luxury Brand Management, Luxury Jewellery Management and Gemology Master's students.

- Birmingham School of Architecture and Design (BSoAD) continued with a programme of Experimental Sustainability Studio (ESS) events with a focus on COP26. The ESS has also been integrated into the welcome week timetable for all ADM students.
- BSoAD also ran a series of Sustainable and Inclusive Environments Virtual Summer Sessions in July 2022, exploring how design thinking can connect people across the globe to learn from each other and work collaboratively to create radical solutions supporting the SDGs. The sessions ranged from sustainable interior design to designing whole communities, including regenerative approaches and alternative to electric vehicles.
- The Design for Future Living undergraduate course run by BSoAD aims to develop exciting and innovative design thinking, questioning preconceptions about how society lives now and into the future. The students tackle the problem of designing and delivering new homes. Homes that are smart, well designed, affordable, create community, respect the environment and support changing family structures.
- The Landscape Architecture MA course now includes the Design for Climate Change module and provides students with opportunities to explore responses to climate change and biodiversity loss, and help in planning and designing meaningful, fair and resilient landscapes, places and communities of the future.
- The Business School is a signatory of the United Nations Principles for Responsible Management Education (PRME), a global initiative advancing sustainable development through business education. Several modules delivered in the Business School at UG and PG levels advance the principles of sustainable development. Masters' students attending 'One Planet Business' module are involved in conducting interviews with local businesses exploring sustainable supply chains and aim to present their findings at a forthcoming PRME event.
- The Business School has also developed a new 'Senior Leader Apprenticeship / PG Diplomain Business Transformation' that embeds responsible leadership and social responsibility mapped to Apprenticeship standards and award learning outcomes related to several SDGs. The Business School also delivers 'Help to Grow Management' programme to the industry which contains content linked to the SDGs and more widely to Corporate Social Responsibility. Internationally, staff lead on projects involved in delivering research methods and academic writing training to doctoral and early career researchers.

Going forward we will:

- Promote embedding sustainability in the curriculum via messaging on digital screens and Instagram, highlighting examples for different SDGs.
- Create a short online version of the embedding sustainability in the curriculum course.

OBJECTIVE 3: CREATING A GREEN CULTURE IN BCU, LOCALLY AND GLOBALLY



Engagement, communication and training

Objectives and Targets	Status
Deliver four environmental engagement events per year	Achieved
Deliver at least one environmental communication per month to staff through our communications channels.	Achieved
Make use of central student communications channels to communicate messages and news of events to the student body.	Achieved
Embed environmental content through nonstandard communication channels to students throughout 2020/25.	Achieved
Increase the number of Environmental Champions joining the network year on year from 2020 to 2025	Achieved
By 2025, all permanent staff have completed the environmental awareness training, with specific environmental training provided to key stakeholders from a 2020 baseline.	In progress

Progress update:

Engagement:

Over 2021/22, the Environment Team delivered 27 events, engaging over 1000 staff, students and external stakeholders, exceeding our target to engage 300 people. Go Green Week was run during the second week of COP26 and opened with a 'Climate Reality' talk by the Environmental Officer, who discussed the climate crisis and its solutions, as well as information about COP26 and how to get involved with environmental initiatives at BCU.

Other events delivered during the period include:

- Dr Bike and cycle security pop-ups.
- Talks on the secret lives of badgers, windowsill gardening, eco gift giving, and natural beauty.
- Litter picks at City Centre and City South campuses.
- Welcome Fair (including stands from National express and Transport for West Midlands).
- Waste and recycling fairs including sort and segregation sessions.
- Presentation to the ADM Administration Team about environmental sustainability at BCU.
- Fairtrade Fortnight delivered competitions and Fairtrade food freebies with BaxterStorey.

Communications:

Over 100 sustainability related communications were delivered to staff via Tiger Today and through student newsletters. Articles promoted sustainable travel options and travel advice, sustainable Christmas tips, a Veganuary competition, Bike Month and a competition for Plastic Free July. Sustainable prizes were sourced from local zero waste shop The Clean Kilo.

An Instagram account for the Environmental Team was set up in October 2021, @BCU_Sustainability. In 2021/22 86 posts were made and acquired 288 followers. This has been a successful way to engage with students and it will continue to be used and promoted.

Total membership of the Environmental Champions network has increased to 79. There has been active engagement on the MS Teams group and meetings were held in August and April, focussing on Go Green Week planning and waste initiatives and communications.

The SU Environmental Committee held meetings throughout the year. The Earth Society and new Gardening Society are included in the membership, and the Committee took the decision to sign up to the Green Impact initiative again.

Training:

The updated spills toolbox talk was rolled out to relevant teams, as was the waste awareness training.

Options and delivery methods for carbon awareness training for staff and students were investigated, and this will be progressed in 2022/23.

Going forward we will:

- Update the communications and engagement strategy, considering initiatives that have low uptake.
- Continue delivering Environmental Champions engagement and meetings.
- Support the SU student Welcome Week and SU Environmental Committee.
- Develop carbon awareness training.
- Finalise the updates to the staff general environmental awareness training.



OBJECTIVE 3: CREATING A GREEN CULTURE IN BCU, LOCALLY AND GLOBALLY



Community Partnerships

Objectives and Targets	Status
Environmental activities contribute towards the Graduate+ awards programme each year, including attending and/or involvement in environmental events and volunteering.	Achieved
Maintain our graduate attributes to include a sustainability and global element year on year.	Achieved
STEAMhouse: Deliver environmentally focused event/workshop once a year from 2020/25.	Achieved
STEAMhouse: Support the local business community with the development of environmentally sustainable business solutions from 2020/25.	Achieved
Birmingham 2029: Deliver applied research on societal challenges facing Birmingham from 2019-2029.	In progress
Work in collaboration with stakeholders and organisations throughout 2020/25 to keep at the forefront of the environmental agenda locally, regionally and globally	In progress
Deliver research projects to develop sustainable solutions locally, regionally and globally through Faculty Research Centres and Groups, for example the Global Environmental Challenges Research Centre	In progress

Progress update:

Graduate+:

The Environment Team organised online talks for the November and March Graduate+ Weeks. Sustainability remains a part of the Graduate+ attributes through Global Outlook, and environmental news and events are also promoted in the Graduate+ newsletters. Taking part in environmental initiatives such as Hedgehog Friendly Campus can count towards students' Graduate+ Awards.

STEAMhouse:

Fifteen businesses were provided with 12 hours support during 2021/22 and a variety of sustainability related workshops were delivered, including:

- an 'Imagine Bamboo' workshop (an ambitious public art project bringing together artists, designers, makers, engineers, environmentalists and communities to explore the potential of UK grown bamboo as a sustainable building material);
- an 'Objects of desire' workshop (focusing on materials and materialism, attendees were invited to make their own versions of commonly desirable objects out of old fabric, wool, cardboard, buttons and other materials);
- a 'Smart-Sustainable STEAM-driven' workshop (bringing research-active staff from across CEBE with an interest in smarter, greener or more sustainable cities to create a platform for future research, knowledge exchange and research informing CEBE courses, taking into consideration 'just transition to net zero' and 'City of Nature' in the context of being the University for Birmingham).

A 12-hour course was delivered to organisations in the built environment, construction and property related sectors need to react to ambitious targets to reduce carbon emissions. The need to measure, monitor and evidence such reductions, makes good data and the skills to interpret it essential. The 'Data analytics for sustainability' course focused on building data skills building on the concepts of data analytics and the use of machine learning.

The 'Junior STEAM Academy' is a collaboration between STEAMhouse and ADM, challenging KS2 to creatively solve problems. The pilot challenged year 5 students to develop new energy solutions for the climate crisis. Varying from plausible to speculative, two designs were developed into prototypes by technicians at STEAMhouse and were exhibited in the Parkside building. Lecturers in the School of Art are developing a Junior Steam Academy (JSA) manual that will share tips and techniques to encourage and develop collaborative and flexible working to solve problems, with example curricula designed around sustainability challenges of the future.

Birmingham 2029:

Birmingham 2029 led on a joint BCU-Birmingham City Council project working with community organisations, residents and stakeholders to identify local community needs and co-design and co-produce community engaged research, including recruiting, training and supporting a team of residents as community researchers. The community researchers produced 10 reports focused on different areas of East Birmingham. The reports identified the use of green spaces, transport availability, funding for local leisure activities, and fly tipping as particular environmental issues. The findings from these projects will be incorporated into local Ward Plans. There will be an ongoing partnership to work with residents and community organisations to co-design solutions. Over 550 people were engaged with through the project.



OBJECTIVE 3: CREATING A GREEN CULTURE IN BCU, LOCALLY AND GLOBALLY



Community Partnerships contd.

Partnership working:

BCU attended BCC's Route to Zero (R20) Community Assembly that was held in February 2022, which was the last one held. The Environmental Officer also attended the first West Midlands Greener Together Forum in March 2022. BCU continue to be members of the Environmental Association of Universities and Colleges (EAUC), making use of the communities of practice and attending relevant meetings. Sustainability West Midlands (SWM) moved into the new STEAMhouse building, and BCU continue to be members.

The BCU India Group have continued to develop collaborative relationships in India between academia, business organisations and civil society to create new strategic projects, to enable practical on-the-ground innovation, enterprise and research. Some examples from 2021/22 in the areas of sustainability include:

- BCU academics contributed to the development of fashion workshops as part of a successful bid for the India-UK Creative Industries grant of £50k. The workshops which will facilitate a dialogue between designers and their support groups, such as tailors/master jhis and local artisans/karigars in India and the UK, together with fashion creatives, academics and students. The focus of the workshops will be on supporting deliberations on sustainable fashion.
- BCU, in partnership with the Department of International Trade (DIT) and leading law firm Howard Kennedy LLP, hosted the Hydrogen India event in June 2022, inviting senior leaders from the Indian hydrogen sector who were in the UK to meet members of the UK Hydrogen and Fuel Cell Association. BCU research on bioenergy and research and industrial project development in the hydrogen economy, circular and low carbon technology were discussed with delegates.

BCU academics partnered with charitable organisation Smallpeice Trust to run a summer school programme about sustainable buildings and neighbourhoods. The three-day programme gave 35 year 10 pupils the opportunity to learn about the importance of retrofitting listed buildings, looking particularly at the area of Digbeth. They worked in teams to explore modelling, energy efficiency, smart buildings, and retrofitting costs. The students produced an evaluative report and a physical model with ideas to make a site in Digbeth more efficient and sustainable.

Research projects:

The **Bio-resource and Bio-economy Research Group** (BBRG), part of CEBE, has been working on several initiatives including:

- In collaboration with ADM BBRG has been exploring the development of sustainable materials from biomass, such as seaweed, crop wastes and food waste. Also working with partners in Indonesia and Brazil to better understand how local communities utilise these crops and how we might, in the future, develop biomaterials from them. A paper on the project will be presented at the Futurescan 5: Conscious communities conference
- The BBRG have secured funding for a 3-year project with partners in Bangladesh to explore the conversion of human waste into sustainable fuel. The 'Sludge 2 Oil' (SOIL) project will explore the conversion of human waste into crude oil via a process called hydrothermal liquifaction. High population densities and inadequate treatment facilities commonly results in the disposal of human waste to surface waters in many areas of Bangladesh. Harnessing the energy within this waste could offer a sustainable alternative to fossil derived fuels. Partnering with Khulma University of Engineering (KUET), Khulna City Corporation and Practical Action a Global NGO, academics at BCU will explore the sustainability and commercial viability of the technology and process.
- Professor of Environmental Engineering Lynsey Melville, who leads the BBRG, has been leading an initiative to develop 'Net-Zero Ecosystems', to align CEBE's core competencies to the challenges of achieving carbon neutrality. This has involved designing a workshop methodology which allows participants to collaboratively identify their internal capacity and capability (across teaching, research and enterprise) and determine relevant external stakeholders and industry needs. This methodology was implemented across three thematic workshops in May 2022 (with over 60 participants in total); buildings, energy and manufacturing.
- Lynsey Melville was also named one of three runners-up in the inaugural David Middleton Sustainability Awards, which reflect excellence in the field of sustainable development.



OBJECTIVE 3: CREATING A GREEN CULTURE IN BCU, LOCALLY AND GLOBALLY



Community Partnerships contd.

The **Future Home Research Group** aims to create better homes for people and focus on 'living lab' projects, including:

- The UK's housing stock currently contributes 15% of the UK's annual greenhouse gas emissions. In 2025 the Government will introduce new building standards, known as the Future Homes Standard (FHS). BCU is the academic research lead for Project 80, which aims to use a development of 12 homes developed by Midland Heart Housing Association as a demonstrator, to show how the FHS can be achieved cost effectively. These developments in Birmingham are the first of their kind in the country and will have carbon emissions 80% lower than one built to current building regulations. BCU will work with residents to understand how user friendly and cost effective they are. All the evidence gathered will help to inform future policy on how we build new homes in a way that's good for both the environment and residents.



- Work is also being undertaken to measure the impact of different building standards on indoor air quality and understand how overheating can be prevented and air quality improved in new homes.
- Academics have continued work on the EcRoFit project, which aims to support local businesses in designing more energy-efficient homes. EcRoFit provides construction and energy professionals with both Continuing Professional Development on 'Digitising Energy Efficiency' to develop their skills and a newly developed software tool for Building

Energy Assessments and Retrofit Recommendations (iRet solution). iRet creates building simulations and provides tailored recommendations for retrofit packages.

- The construction industry is aware of the difficulties of decarbonising the supply chain. Building Alliance Carbon Pact research is looking at reducing the use of single life plastic and embodied carbon in the delivery of new homes.

Other research across the University has included:

- BCU will undertake research to inform the development of the national framework of standards for Green Infrastructure in England, a commitment by government set out in its 25 Year Environment Plan. The framework of standards will directly influence local land use planning policy and development decisions.
- BCU continues to research advanced sensor and smart technologies and the internet of things (IoT) to tackle regional and global water challenges. The 'IoT4Win' project aims to use advanced sensing and IoT technologies to improve the efficiency and performance of water supply and distribution systems across the UK and Europe.
- Research is also underway on an IoT air quality monitoring system, which will contribute towards climate neutrality ambition by utilising new IoT technologies in environmental monitoring, for increasing public awareness of surrounding air quality and potential air pollution to support environmental policy development.
- Joint CEBE and DfE investment has enabled the development of an Electric Vehicle (EV) test cell at BCU. The EV test cell is a vital tool in aiding the transition to low-carbon transportation as it enables the development and trialing of systems and components against automotive industry specifications and regulations whilst ensuring students develop the key skills needed in the industry. It establishes BCU as one of but a few UK universities with this technology.



OBJECTIVE 3: CREATING A GREEN CULTURE IN BCU, LOCALLY AND GLOBALLY



Community Partnerships contd.

- CEBEs Additive Manufacturing (AM) facilities enable industrial-quality rapid prototyping and production of complex components. This provides new design possibilities across a multitude of applications, including aerospace, biomedical, automotive, tooling and research. In comparison to conventional material processing methods, it is greener, safer, and more sustainable.
- The Climate Action Game project was a co-design and play research project inspired by [COP26](#). BCU academics in collaboration with artists and practitioners worked with thirteen young people aged 14-18 from Balsall Health, Birmingham in a co-design process to develop a climate action board game. The project aimed to understand how aware young people are of the impact of the built environment on climate change. The participants developed a board game to inform people of the role of the built environment in the climate emergency – “CLIMANIA: The Climate Action Game” focusing on urban planning and retrofit.
- A range of research projects led by Business School academics advanced sustainability principles related to the SDGs these included projects on the food supply chain; tourism revival for post-conflict Kashmir and Northern Ireland; animal health care industry; and e-motor Sports. Several peer-reviewed research articles published during 2021-22 address the findings from various projects and initiatives related to circular economy and corporate social responsibility research.
- Academics from the Business School (including Professors Vijay Reddy, Deborah Lock, Alexandros Psychogios, and Eileen McAuliffe) delivered high-impact presentations related to ‘Rebuilding Businesses in Ukraine’, and ‘Neuroscience and Leadership’ topics to 100+ companies associated with the European Business Association in Ukraine (related to several SDGs).

Going forward we will:

- Continue to include environmental events in Grad+ Weeks in 2022/23.
- Continue to have BCU represented on environmental forums.
- STEAMhouse: continue to provide sustainability support and events to local businesses and branch out to collaborate more closely with academics across BCU developing STEAM approaches, methods and projects that aid sustainability transition and transformation.
- Academics: continue to develop and deliver research at BCU supporting the local, regional and global sustainability agenda.



KEY

These are the 17 UN SDGs as referenced throughout the document.
For more information on the SDGs visit the UN website.

