



BIRMINGHAM CITY
University

2020/21 ANNUAL ENVIRONMENT REPORT



FOREWORD

This is our first environmental report fully aligned with BCU's Environmental Plan 2020-25 and has been structured to reflect the three key objectives of the plan; to embed sustainability in our processes, reduce the environmental impacts of our operations, and grow a green culture within the University and beyond.

2020/21 has continued to be a challenging year for us all as we navigated our way through changing Covid-19 impacts and regulations and the implications this had on our organisation and operations. Covid-19 has continued to have a big impact on our environmental performance. There have been some positive impacts such as reduced waste production and carbon emissions from travel, however we recognise that the level of these savings will not be maintained as we come out of the pandemic. There have also been challenges such as the funding and delivery of energy efficiency projects.

Coming out of the pandemic, we will continue to review how we can maximise on environmental improvements and implement positive changes from lessons learnt, for example, through embedding environmental considerations in our agile working and business travel reviews and signing off our zero carbon targets and approach.

Professor Philip Plowden
Vice Chancellor



CONTENTS

1.	Introduction and headline figures from 2020/21	3
2.	Objective 1 - Embedding sustainability in our processes	4
	2.1 ISO 14001:2015 Accreditation	4
	2.2 Procurement	5
	2.3 Projects and other processes	6
3.	Objective 2 – Reducing the environmental impacts of our operations	8
	3.1 Biodiversity	8
	3.2 Catering	10
	3.3 Energy and carbon	11
	3.4 Environmental compliance	13
	3.5 Sustainable buildings	14
	3.6 Transport	15
	3.7 Waste and recycling	17
	3.8 Water	19
4.	Objective 3 – Creating a green culture within BCU, locally and globally	20
	4.1 Sustainable curriculum	21
	4.2 Engagement, communication and training	22
	4.3 Community partnerships	24

1. INTRODUCTION AND HEADLINE FIGURES FROM 2020/21

This is Birmingham City University's (BCU) first report aligned to our Environmental Plan 2020-25 objectives and provides a summary of the progress we have made over 2020/21 against the Plan's three key objectives.

November 2020 saw the sign off of BCU's new Strategy 2025. Our mission is to be the 'University for Birmingham' and to work with individuals to enable them to transform their lives and to achieve their potential. This aligns strongly with the Environmental Plan, in particular with the third objective, 'Creating a green culture within BCU, locally and globally'.

Strategy 2025 recognises the need to respond to the environmental sustainability challenge, ensuring that we minimise the adverse impact of operations and work with our students to create sustainable futures, and this is reflected in the strategy's measures of success.

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 has taken place over 2020/21, and an overview of actions to continue to progress work in each area.

1.1 Headline figures and outcomes from 2020/21 include:

45% scope 1 and 2 carbon emission reduction achieved

EXCEEDING
43% TARGET

Purchased

100%
RENEWABLE ENERGY

for buildings in our control

Water consumption reduced by

31%

(from 2019/20 to 2020/21)

61%

of BCU's buildings now have water meter data loggers fitted

Overall

WASTE PRODUCTION
reduced by **36%**

(from 2019/20)

2,540 tCO₂e

REDUCTION IN CARBON EMISSIONS

from air and rail travel from 2018/19 compared to 2020/21

ISO 14001:2015 Environmental Management System **ACCREDITATION MAINTAINED**



Achieved bronze **HEDGEHOG FRIENDLY CAMPUS AWARD**



Maintained bronze **FOOD FOR LIFE AWARD**

Environmental Team delivered

25 EVENTS,
engaging
936 STAFF,

students and external stakeholders

Over **100**

sustainability related communications delivered to staff and students

Staff Environmental Champions network of

75 MEMBERS

STEAMHOUSE:

30 businesses provided with 12 hours support linked to sustainability projects and initiatives

GREEN GOWN AWARD

finalists in two categories for sustainable curriculum initiatives

2. OBJECTIVE 1: EMBEDDING SUSTAINABILITY IN OUR PROCESSES



2.1 ISO 14001:2015 Accreditation

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: Aston University conducted a peer audit of our Environmental Management System (EMS) in December 2020, ahead of our external audit. This was conducted remotely due to the pandemic, and identified one minor non-conformity (MiNC) and one opportunity for improvement (OFI) relating to our Modern Slavery statement and inclusion of Covid-19 in our PESTLE analysis.

In February 2021, our EMS underwent its ISO 14001:2015 external surveillance audit, which was successfully undertaken remotely again due to the pandemic.

One MiNC and four OFIs were identified which was a great result for BCU, particularly after such a disruptive year. The findings were linked to:

- MiNC: monitoring compliance of discharge consents
- OFIs: reducing the number of procedure documents, standardising COSHH assessments disposal arrangements, labelling of bins and contractor competency records

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 Environment Team on the School of Jewellery, Parkside Building, St Paul's Square, Seacole Building, Bevan House, Ravensbury and the School of Art. As a result of these internal audits, improvements have been made to:

- Safety and reducing pollution risk through increasing spill kit and PPE provision where required;
- Chemical management in workshops and labs;
- Waste management in our buildings through engagement of colleagues and improving bin signage; and
- Management of environmental compliance documentation such as waste and F-gas paperwork.

Going forward we will:

- Review and implement a new internal audit programme
- Take forward internal environmental training developments, in particular with spills response
- Peer audit conducted with new organisation in 2021/22
- External surveillance audit undertaken in February 2022



2. OBJECTIVE 1: EMBEDDING SUSTAINABILITY IN OUR PROCESSES



2.2 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:

Strategy: Procurement strategies, where applicable, encompass Sustainability Impact Assessments to identify areas of focus in the tender process and the applicable goals to an individual procurement and how they can be impacted by the contract.

The Procurement Team has worked with the Environmental Manager over the past 12 months to update their Category Strategies identifying the key Sustainability Development Goals (SDG) that align to their category areas. The selected SDGs support the integration of sustainability requirements in the category procurements.

Training and NETpositive Futures: In October 2020, the Procurement Team and Environmental Manager attended NETpositive Futures (NPF) supplier engagement software training. The NETpositive Software enables BCU to offer our suppliers an opportunity to generate their own, bespoke Sustainability Action Plan.

A new version of the tool was launched in 2021 and further NPF Toolkit training took place in March 2021 for the Procurement Team and Environmental Manager and Officer. Reporting training will take place in September 2021.

Twelve of BCU's top 20 spend suppliers are signed up to the NPF toolkit, with six of those suppliers procured before the system was in place. These are being re-tendered in the next 12 months and it will be a mandatory element of the tender process to for suppliers to have an action plan.

The other two are major software suppliers and have environmental targets built into their corporate social responsibility charter.

Over the next 12 months, this analysis will widen for each category area. BCU will work with NPF to ensure BCU specific targets are being monitored and reported through the new reporting process.

Procurement process: New procurements in 2020/21 that have incorporated sustainability are as follows:

- FM066A - Uniforms – Online Catalogue Service
- IT101 - AV Refresh Projects
- FM109 – Water Management Services
- FM110 – Lift Maintenance Services
- IT087 – CRM Solution for Marketing
- IT087 – Network Infrastructure Refresh Project
- PS067 – Personal Assistance Scheme for Students
- FM100 – Planned Preventative Reactive Maintenance Services
- FM117 – Catering Services
- FM111 – Biomass Fuel
- IT110 – Storage Hardware

Sustainability Impact Assessments (SIAs) are included in the procurement strategy for all procurements over the value of £60k.

Measurement: The Procurement Team has set up a tracker to review progress against KPIs for the top 20 spend contracts. A new post in the team, Contracts and Category Assistant, has been appointed who will be responsible for the new tracker and ensuring a reporting tool to share with suppliers and contract managers is in place.

Development of a suite of sustainable KPIs to use as part of the procurement process is in progress, working with NPF and the Environmental Manager.

Going forward we will:

- Finalise Procurement Strategy with sustainability content and embed in project based procurement strategies
- Embed sustainability as a core requirement in key upcoming procurements such as catering, stationery, computer hardware and building maintenance
- Include sign-up to the NPF tool in the procurement process with suppliers to increase sign up and development of sustainability action plans

2. OBJECTIVE 1: EMBEDDING SUSTAINABILITY IN OUR PROCESSES



2.3 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.	To be actioned
By 2020/21 sustainability has been integrated in project management template documents.	In progress
By 2020/21 complete a mapping exercise to identify further University processes to embed sustainability.	Ongoing
Develop and implement an ethical investment policy for BCU by end of 2020/21.	In progress
Review how sustainability links to and can be incorporated in the new IT strategy by end of 2019/20.	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:

Project Management Documents: Environmental content has been added to the University's Business Case and Project Initiation Document templates. This requires those completing the documents to identify any environmental risks with regards to their proposals identifying how these could be mitigated, and also any environmental benefits and how these will be measured. The environmental additions require final approval and will be added to the templates in 2021/22.

Governance mapping: The University Executive Group, Board of Governors and Academic Board have been identified as the main governance committees to embed sustainability as part of the review and decision making process. This will be reviewed and pursued over the duration of the Environmental Plan.

AIM Accreditation: In March 2021, BCU became an AIM Secure accredited member 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.

Ethical investment: An Ethical Investment Policy has been developed by BCU, which outlines our commitments to ensure that investments match our sustainability priorities and values, and take into account 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 will be going to Finance Committee in 2021/22 for sign off.

In 2020/21, BCU also moved investments with the CCLA to a more ethical investment fund. The CCLA recognise climate change as a major risk to investments and are working to conduct climate risk analysis on all industries prior to investment and annually thereafter, and are committed to net zero portfolio emissions by 2050.

The new fund employs ethical investment policies that prohibit investment in companies which do not meet certain requirements. This includes companies such as those who:

- Produce landmines, cluster bombs, chemical/biological weapons, and/or nuclear weapons.
- Have significant involvement (>10% of turnover) in alcohol, gambling, pornography, tobacco, high interest rate lending, non- military weapons, or strategic military sales.
- Test cosmetics on animals.
- Have fallen behind the transition to a low carbon economy e.g. Companies whose principal business is the generation of electricity, that have not demonstrated the ability to align their business with the Paris Climate Change Agreement.



2. OBJECTIVE 1: EMBEDDING SUSTAINABILITY IN OUR PROCESSES



2.3 Projects and other processes

Agile working: Since the Covid-19 pandemic started, staff have experienced different ways of working and we want to capture the good practice to support the benefits as well as reductions in transport emissions. Agile working allows employees to work in flexible ways to enable them to do their jobs more effectively through collaboration and efficient working practices. Environmental considerations have been embedded into the Agile Business Case linked to carbon emissions savings, building management and travel (commuting and business) savings. An agile working pilot and range of solutions will be trialled over 2021/22 to test different work and meeting spaces, and support virtual meetings and meetings where people are in mixed locations.

IT Projects: Over 2020/21, IT has delivered a range of projects that support the environmental agenda. External accessibility to the University's Building Management Systems (BMS) has been improved, which was essential during lockdown to ensure that colleagues could alter heating and cooling settings remotely to reduce energy consumption where feasible. Further improvements have been made to software solutions to enable remote learning, teaching and working through Microsoft Teams and the Virtual Learning Environment, supporting agile working and a reduction in transport carbon emissions.

Teaching and Learning Enhancement Strategy 2020-25: Sustainability has been embedded in BCU's new Teaching and Learning Enhancement Strategy. The strategy recognises environmental sustainability as a core priority, and our curriculum plays a vital part in ensuring we work with our students to create sustainable futures. Further information on BCU's sustainable curriculum work can be found in Section 4 of this report.

Going forward we will:

- Agile working: continue to roll out the agile working pilot, embedding environmental considerations and monitoring environmental impacts where feasible
- IT Projects: Move to more energy efficient cloud-based services, BMS moved to virtual servers and Audio Visual equipment remote monitoring tool rolled out
- Ethical Investment: Implement our new Ethical Investment Policy and continue to identify further opportunities to move to more ethical investments



3. OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



3.1 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 by spring 2021 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:

BCU appointed FPCR Environment and Design Ltd. in April 2020 to conduct ecological surveys across our sites and support the development of a Biodiversity Action Plan (BAP). They have completed surveys to measure our ecological baseline, including Preliminary Ecological Appraisals, bat Preliminary Roost Assessments, static bat detector surveys, breeding bird surveys, moth traps and butterfly transects. They have also trialled the NATURE tool to assess ecosystem services, as part of the WSP/Ecosystems Knowledge Network case study programme and undertaken i-tree assessments.

Our sites have been found to support a range of common and widespread bird species including robin, blackbird, blue tit, dunnock, song thrush and chiffchaff and badgers are known to be present.

The butterfly transects identified four species present at Pavilion including meadow brown, red admiral, small white and speckled wood, while moth traps identified over 8 species on campus.

The bat detectors deployed at various locations across the campuses recorded a number of species including pipistrelle (both common and soprano), noctule, serotine, brown long-eared and myotis bat. In addition, a walkover survey identified several buildings with bat roosting potential.

A draft BAP has been developed and following consultation with staff, students and the local community, is currently being finalised. The BAP actions are guided by a series of principles, including:

- Protect and enhance existing ecological resources
- Create new habitat for wildlife across the University grounds
- Engage students and staff in the campuses' biodiversity and greenspace resources
- Incorporate biodiversity within new developments



3. OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



3.1 Biodiversity

Elsewhere, the Grounds Team have continued to carry out work to encourage biodiversity on campus, including:

- Creating a bug hotel at City South Campus in November 2020
- Planting over 1000 native bulbs, including daffodils, alliums and fritillaries
- Planting a mixed native hedge of hawthorn, blackthorn and hazel at City South Campus
- Planting native trees and shrubs at various sites including silver birch, crab apple, rowan and pear
- Planting Verbena bonariensis to attract butterflies
- Improving the wild meadow area by sowing yellow rattle seeds, which is semi-parasitical on grasses and so weakens them, thereby giving other wild flowers a chance to compete and gradually establish themselves

We achieved the Hedgehog Friendly Campus (HFC) Bronze award in February 2021 and are now working towards the Silver award. To achieve Bronze, we completed various actions including:

- Conducting hedgehog footprint surveys
- Running a fundraising quiz for the British Hedgehog Preservation Society
- Setting up HFC social media accounts
- Installing a hedgehog house
- Adding hedgehog awareness stickers to all grounds machinery
- The Grounds Team attended a Hedgehog Ecology and Land Management Training Session

In September 2020, 130 jars of honey (65lbs) was collected from the beehive on the Millennium Point/Parkside Building link bridge. Following a student and staff poll, it was named BeeCU Honey and sold in our campus shops.

The food growing sites at City South Campus and Curzon Building terrace have been maintained, however the pandemic has meant they have not been used since March 2020.

Going forward we will:

- Finalise and publish BCU's first BAP
- Carry out the 2021/22 actions from the BAP and associated management prescriptions
- Achieve HFC Silver accreditation



3. OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



3.2 Catering

Objectives and Targets	Status
Deliver our Sustainable Catering Policy and Targets to 2020/21.	On track
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:

A new two-year Sustainable Catering Policy and Targets has been agreed and is in place for the remainder of BCU's current catering contract with BaxterStorey. The policy and targets will be refreshed when a new tender is in place in August 2022.

BaxterStorey maintained the bronze Food for Life award, and the re-audit will be completed in January 2022.

Covid-19 has brought about negative environmental challenges for the catering contract. Disposables had to be implemented to reduce contamination risk, however reusable cups and all crockery and cutlery has now been re-instated. BaxterStorey continue to sell KeepCups and Eco-to-Go reusable boxes at each location.

BaxterStorey has been reviewing as a business how to reduce packaging further, and have been taking measures such as cakes stored under a cake closh and not pre-wrapping items that they would heat.

Lots more plant based options, such as jackfruit, vegan cakes and snacks, and the introduction of pea milk suitable for vegans has been introduced into catering. Healthy Eating posters and recipes promoting super foods and health eating have been shared with University Locks, our BCU managed halls.

As BaxterStorey staff have been returning to work from furlough they must complete mandatory refresher training, which includes sustainability modules. Their Environmental Champion has been working closely with BCU's Environmental Officer on environmental events and further information can be found in section 4.2 of this report.

The Environmental Team has provided some initial input in the retender of the catering contract and will continue to provide support to ensure sustainability is a key part of the new contract.

Going forward we will:

1. Continue to focus on sustainability as a priority in the catering tender
2. Delivery of year 2 of 2020-22 Sustainable Catering Policy and Targets:
 - a. Review Silver Food for Life catering accreditation and implement actions where feasible
 - b. Review installation of herb planers in main restaurant areas of Curzon and Seacole to be used in kitchens and promote grow your own
 - c. Increase plant-based and vegetarian options available through BaxterStorey's Equilibrium initiative, reducing meat content by 20%
 - d. Reduction in disposables
 - e. Reduce food waste



3. OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



3.3 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 by 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:

Due to the pandemic, 2020/21 saw lower occupancy in buildings than during a normal year of operation. Electricity consumption dropped by 3% compared to 2019/20, and 15% when compared to 2018/19. However, gas consumption increased by 18% compared to 2019/20, and 9% compared to 2018/19. The higher gas consumption was needed to provide heat to balance the increased levels of ventilation required to combat the spread of the virus.

Work undertaken by the Engineering Team and Energy Manager at the Royal Birmingham Conservatoire has led to a 16% reduction in gas consumption in the building during 2020/21. Improvements were made to the way the building operates via the BMS, heat recovery was initiated in the building, and insulation added to heating pipes for the humidification system.

The biomass boilers have not been operating during this period but should be working again during autumn 2021. This will help reduce the emissions due to gas consumption during 2021/22.

It was hoped that a number of energy efficiency projects would be delivered during 2020/21 but due to changes in the way the government funds projects it has not been possible to move ahead with the programme. Interest-free loans previously provided through Salix Finance have been discontinued and universities now compete with other public sector bodies for a share of a funding pot. An unsuccessful application was made in November 2020, when the first funding pot was announced, which included the project to increase onsite electricity generation across the estate. The Energy Manager and Engineering Team are now monitoring future funding opportunities and exploring alternative means of funding projects.

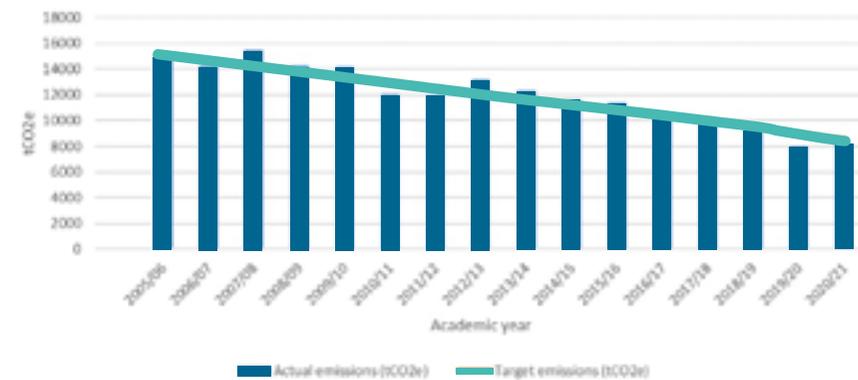


Figure 1: BCU achieves a 45% reduction of emissions against its 2005/06 baseline

Since the HEFCE carbon reduction target has now been achieved BCU is without a defined carbon emissions reduction target. 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 Action Plan is due to be refreshed in 2022/23 and this change will be reflected in that update.

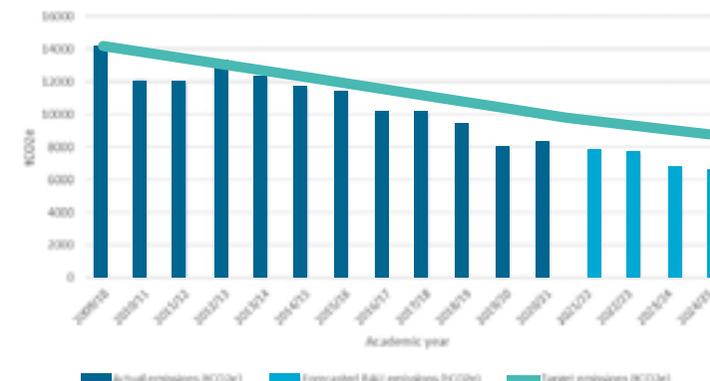


Figure 2: BCU's projected reduction of emissions to 2024/25 against the BEIS target of 50% by 2030.

3. OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



3.3 Energy and Carbon

Table 1 outlines the main areas of BCU's CO₂e emissions that we calculate with the data we currently have available.

Table 1: BCU's total CO₂e emissions for 2020/21.

Scope	Area	tCO ₂ e
1	Gas	4636
1	Other gases	0
1	Petrol	2
1	Diesel	5
1	Fugitive emissions	0
2	Electricity - general minus EV charging	3598
2	Electricity - EV charging	0
2	PV - generated electricity	0
Sub-total (scope 1 & 2)		8241
3	Purchased goods and services	28154
3	Capital goods	3570
3	Construction	4665
3	Water and wastewater	17
3	Business travel - air travel	48
3	Business travel - rail travel	1
3	Commuting - staff	2845
3	Waste	5
3	Electricity transmission and distribution	318
3	Woodchip	0
3	Electricity WTT	570
3	Gas WTT	505
Sub-total (scope 3)		40697
TOTAL tCO₂e (all 3 scopes)		48939

Alongside the decarbonisation plan several members of the Estates Team have been involved in a BEIS-funded project to understand what is involved in decarbonising Birmingham. The project, led by consultants WSP, focuses on decarbonisation from a city-wide and sectoral perspective. BCU, along with other Birmingham universities, have submitted energy data to help WSP understand current levels of energy consumption. WSP findings will be fed into BCU decarbonisation planning and help inform future direction.

Going forward we will:

- Achieve sign off for BCU Decarbonisation Plan and zero carbon targets
- Agree a strategy and tender for an energy provider for 2022 onwards
- Apply for energy efficiency grant funding opportunities where feasible and identify other sources of funding where appropriate
- To continue identifying where metering and data collection improvements can be made
- Continue to identify areas for further improvement in operation through BMS interrogation and building audits.



3. OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



3.4 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. Further work has been conducted in 2020/21 to improve BCU's environmental compliance which has been outlined below.

ClearLead Consultancy conducted a review of our Environmental Compliance Register in March 2021, which identified improvements to strengthen the document.

Work to improve management of our small volume discharge consents has been undertaken with Technical staff in a number of our buildings in 2021, with colleagues conducting monitoring of effluent and displaying signage by sinks outlining what can and can't be disposed of down our drains.

Drainage inspections have taken place at Bevan House, Ravensbury, School of Jewellery, Seacole Building, University Locks and School of Art to ensure no blockages and risks of flooding and contamination incidents.

There have been no F-gas leaks reported from our equipment in 2020/21 and therefore no fugitive emissions to report on.

Going forward we will:

- Conduct a compliance check of our Environmental Compliance Register
- Aim to mark up another building's drains to indicate if they are foul or surface water subject to budgets
- Continue programme of drainage inspections across our sites



3. OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



3.5 Sustainable Buildings

Objectives and Targets	Status
Achieve an EPC rating of 'A' on all new builds.	No new builds with this target on site
Achieve BREEAM 'Excellent' as a minimum for all new builds.	On track
Deliver BCU's Sustainable Building Standard for all new builds and refurbishments from 2020-25.	Ongoing

Progress update:

Over 2020/21, construction has continued on the STEAMhouse building in our City Centre Campus. This will be BCU's new innovation space for collaboration that is a new home for our School of Computing and Digital Technology, partner businesses, the STEAM Incubator and STEAMhouse prototype in Digbeth from the Research, Innovation, Enterprise and Employability (RIEE) department. The £70 million restoration and expansion of the historic Belmont Works reached a milestone recently, as the new iconic façade of STEAMhouse was unveiled. The building is due for completion in January 2022 and is on track to achieve BREEAM Excellent and an Energy Performance Certificate (EPC) B. This target EPC rating was in place prior to the Environmental Plan target of EPC A. The fit-out of STEAMhouse is targeting BREEAM Excellent and the scope of this is currently being defined.

The Environmental Team has been involved with inputting sustainability requirements in the specifications for proposed projects including a new academic build at City South Campus and at the Alexander Stadium where BCU will be occupying as a legacy tenant after the 2022 Commonwealth Games. This has included targeting SKA gold rating and operational net zero carbon for refurbishment areas, net zero carbon buildings for new builds and reducing embodied carbon emissions. SKA rating is an environmental assessment method for non-domestic fit-outs, which is led and owned by RICS (Royal Institution of Chartered Surveyors).

A 'Zero Carbon Future' document has been drafted that will outline our approach to decarbonising our estate. This will work towards achieving net zero carbon targets through interventions such as implementing low/zero carbon heating options in our buildings and increasing on-site power generation, for example, through installing further solar panels across our estate.

Going forward we will:

- Complete STEAMhouse new build achieving BREEAM Excellent and EPC B
- Continue to drive net zero carbon requirements as a priority for future projects
- Develop investment grade proposals for low/zero carbon heating systems across our estate



3. OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



3.6 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
By July 2021 review and agree an approach to post-combustion engine vehicles for BCU.	In progress

Progress update:

Travel Plans:

We were due to carry out staff and student travel surveys in March 2020 to input into a Travel Plan for 2020-2022. However, due to Covid-19 we delayed the next full travel survey until 2021/22 to inform a Travel Plan for 2022-2024.

A short travel survey was run in August 2020 to gain an understanding of how travel behaviours may be affected under Covid-19. The key results included:

- Pre-Covid-19, the most popular modes of travel for students were bus, train and walk and staff were train, drive alone and bus.
- During Covid-19, the most popular modes of travel for students remained the same, however there was a significant change in the responses from staff, with the most popular modes being drive alone, train and cycle.
- 32% of respondents said they would consider cycling to the University if there was an increase in cycle parking facilities.

Based on the results of this survey we carried out various projects in 2020/21, including:

- Improving cycle parking signage
- Increasing secure cycle parking to staff by opening an area of parking at University Locks
- Running D-lock exchange events
- Reviewing where we can increase cycle parking in the future
- Investigating increasing the staff Cycle to Work Scheme amount
- Using the survey results and other information, we have developed an Interim Travel Plan (ITP) to ensure that we are still taking opportunities to encourage the use of sustainable transport and build on the impacts that Covid-19 has had on travel, ways of working and studying.

Business travel data – air and rail:

The impact of Covid-19 on University travel continued even more so in 2020/21 as shown in figures 3 and 4. 2020/21 saw a 98% reduction in air miles and 97% reduction in flight carbon emissions compared to 2018/19 due to reduced travel from restrictions. This is a reduction in carbon of 2,470 tCO₂e compared to a previously normal year of operation in 2018/19.

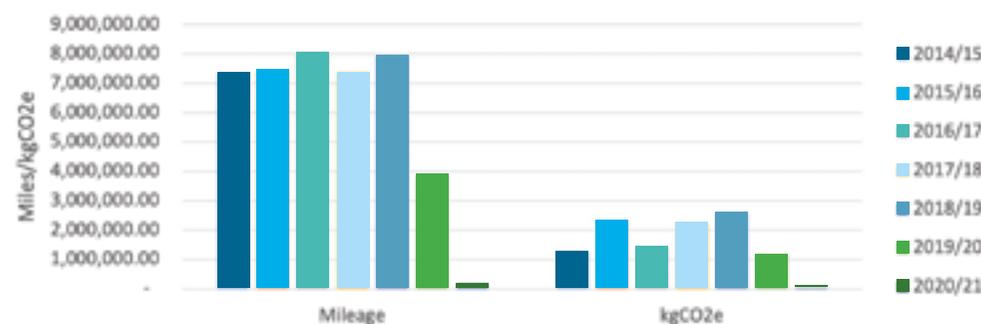


Figure 3: BCU business travel air mileage and carbon emissions

Like air travel, rail business travel has also seen a huge reduction from 505,000 miles in 2018/19 to nearly 7,700 miles in 2020/21. This has reduced rail carbon emissions from 33.4 tCO₂e in 2018/19 to 0.5 tCO₂e in 2020/21.

3. OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



3.6 Transport

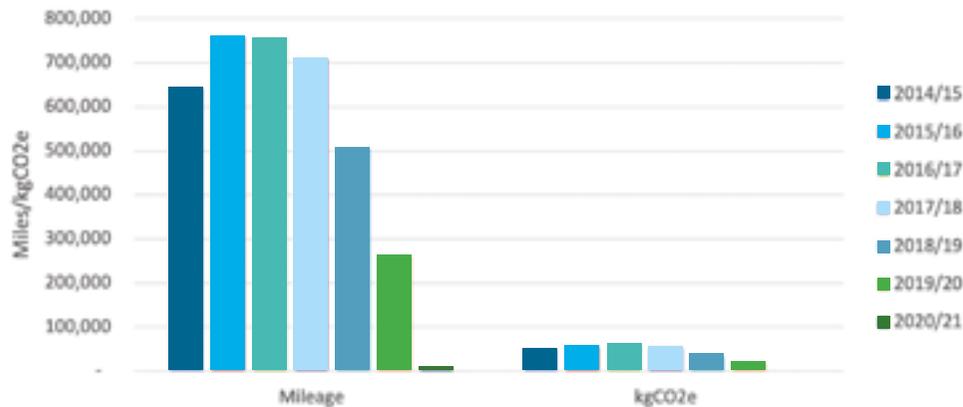


Figure 4: BCU business travel rail mileage and carbon emissions

The agile working approach as referenced in section 2.3 will continue to support an ongoing reduction in business travel emissions through a change in our day-to-day operations.

Business travel data will continue to be reviewed; we have useful data on flights and train journeys but not other business travel modes. This will be addressed through future work on a Business Travel Policy.

Other updates:

Electric Vehicle Charging Points (EVCP): We are reviewing the potential capacity for EVCPs across our sites and will use this information to agree an approach to EVCP provision and management.

Work with local travel partners:

We launched a National Express Student bus portal, which included opportunity for students to get £5 credit if they registered within the first month.

We have worked with Voi and Birmingham City Council (BCC) on the e-scooter trial to have designated parking areas near campuses for students, staff and visitors to use. BCU attend monthly stakeholder engagement sessions with BCC and Voi and have access to their online dashboard to view e-scooter statistics.

The Birmingham Clean Air Zone (CAZ) launched on 1 June 2021 and we have provided regular information to staff and students about this, including a webinar run by BCC, BCU CAZ webpage and regular features in Tiger Today.

Cycling:

The following actions have been undertaken to support and encourage cycling at BCU:

- WM Cycle Hire scheme launched in June 2021. We have liaised with Transport for West Midlands (TfWM) and BCC about docking station locations and promotion of the scheme. A docking station is located on Cardigan Street for our City Centre Campus and there are docking stations close to our other City Centre sites.
- Set up a Bicycle User Group on MS Teams (BCUBUG) to share information and offer support to BCU staff and student cyclists, and potential cyclists.
- Arranged for Cycling UK to deliver a webinar to staff and students about Commuting by Bike in April 2021.
- Organised three free Dr Bike repair sessions for staff and students at City Centre and City South Campus in April and May 2021.
- Set-up staff and student listings on the Love to Ride platform and promoted using the platform to log rides, through campaigns and competitions such as Bike Month and Cycle to Work Day.
- Due to Covid-19, staff and students taking part in the Brompton bike scheme had their loan agreements extended until they were able to safely return the bike to campus and new agreements have been paused.

Ongoing communication has taken place with staff and students surrounding journey planning and local changes, including promoting commenting on BCC emergency transport measures and other relevant consultations.

Going forward we will:

- Publish the Interim Travel Plan (ITP)
- Carry out the 2021/22 actions from the ITP
- Run a Travel Plan survey in March 2022
- Develop new Travel Plans for BCU to cover 2022-2024
- Continue to support sustainable transport schemes in the region such as the e-scooter trial and cycle hire
- Review the BCU Brompton Bike Scheme
- Embed sustainability and sustainable travel options as part of the business travel policy development
- Confirm approach to EVCP provision and management.

3. OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



3.7 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.	Achieved – 36% reduction
Increase recycling rates annually by 2% per year by 2025 from a 2018/19 baseline.	Not met
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:

Through the Environmental Plan, a new baseline of 2019/20 was agreed to measure waste due to a number of changes in our estate. However due to the pandemic, it has been agreed to set 2018/19 as a baseline so we can use a normal year of operation to track future progress against our waste reduction and recycling targets.

2020/21 saw a 40% reduction in the total waste generated from our academic buildings and a 20% reduction from accommodation when compared to 2019/20. This is mainly due to the pandemic and having fewer members of staff and students on site, however Facilities have been working hard to continue to reduce waste and increase recycling where they can. Overall there was a 36% reduction in general waste and recycling from 2019/20 to 2020/21, see figure 5, however this data is skewed due to exceptional conditions.

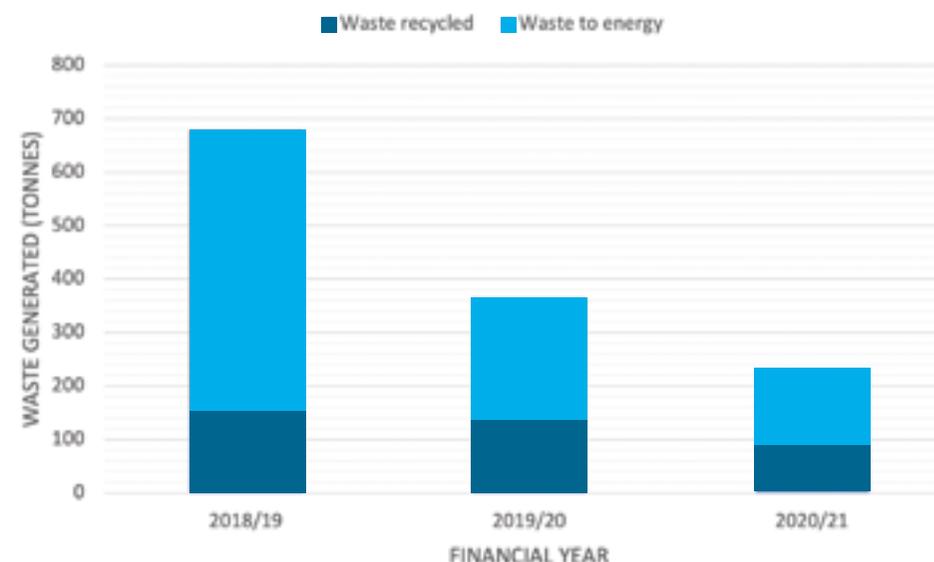


Figure 5: 36% reduction in general waste and recycling tonnage from 2019/20 to 2020/21

Regarding progress against the 2% increase in recycling target year-on-year, the proportion of general waste vs recycling tonnage reduced slightly from 36% in 2019/20 to 35% in 2020/21, therefore the recycling target has not been met. The total recycling tonnage showed a 37.8% reduction from 2019/20 to 2020/21 from 130 tonnes to 81 tonnes of waste recycled. This is due to abnormal operating conditions, a clear out of old accommodation blocks at City South, and a number of office clear outs during the year in preparation for students and staff returning to site as lockdown measures ease and changes in space use for agile working.

Waste reduction and recycling initiatives:

During 2020/21, paper bins were removed and replaced with confidential waste consoles to ensure that all paper waste was treated confidentially to prevent any data protection breaches. All confidential waste is recycled into tissue products.

Housekeeping clearance projects have been undertaken at City South Campus, University House and Joseph Priestley Building. This created an additional 11 tonnes of paper waste, all of which has been recycled, saving approx. 187 trees.

3. OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS



3.7 Waste and Recycling

From regular audits carried out by BCU's Quality Control Officer, contractor waste was identified in our waste streams. All contractors are now asked to take their waste away with them to ensure that BCU waste streams are uncontaminated.

BCU has worked in partnership with ISS, our cleaning contractor, who are asked to identify and report hotspots where recycling is being contaminated. Where possible, and safe, the ISS cleaning team also help to segregate waste to reduce contamination into other waste streams and promote recycling.

Through our robust monitoring of the University waste streams, Veolia, our waste contractor, commented that the University recycling is the best it has ever seen.

We are reducing waste where feasible through our contracts. ISS are trialling chemical free cleaning using Tersano which uses ozone to clean and sanitise. A cost benefit analysis will be conducted to roll this out university wide. ISS continue to invest in low power consumption machinery. They use microfibre cloths, which are washed and reused many times eliminating single use, disposable cloths.

The Waste and Resources Task Group has not been set up as yet, however the Terms of Reference have been written and key stakeholders identified to include in the group.

Coffee cup recycling was trialled in Curzon Building but wasn't initially successful so has been put on hold. BCU will look to re-engage catering over 2021/22 to reduce this waste stream.

The roll out of food waste caddies in remaining staff and student kitchen areas has been completed at the City Centre Campus. This is due to be rolled out at City South Campus shortly.

Work has been undertaken to reuse items wherever possible. In January 2021, BCU used Collecteco for the clear out of furniture from old accommodation blocks at City South Campus. Furniture to the value of £79,860 was donated to the community, with 22 causes supported, 17.6 tCO2e avoided, and 20.3 tonnes of furniture diverted from landfill/waste. Some of the good causes supported by BCU through this initiative include Midlands Living, The Prince Charles Hospital Foundation and Shelter West Bromwich.

Going forward we will:

- Set up Waste and Resources Task Group meetings to take place in quarter 2 of 2021/22
- Bin signage redesign to then carry out a campus wide recycling campaign to re-enforce our waste streams, including new corridor signage at University Locks
- Review of bin strategy to ensure we have the correct bins in the locations where most needed/utilised
- Food waste caddy roll out at City South Campus
- Promotion of ongoing waste 'good news' with TV screens across campus, including a waste stream topic per month where we show that streams journey
- Engage with Catering to discuss packaging and products they sell with potential view to eliminate a waste stream such as tins and cans



3. OBJECTIVE 2: REDUCING THE ENVIRONMENTAL IMPACTS OF OUR OPERATIONS

3.8 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 in 2020/21, and associated carbon emissions, to deliver by 2025	Ongoing

Progress update:

Due to low occupancy in BCU's buildings throughout 2020/21 and by targeting water reduction, waste water consumption has decreased 31% compared to 2019/20, and 44% when compared to 2018/19. BCU now has confidence in the water consumption data being collected and has been able to set a baseline using 2019/20 consumption figures. This baseline will be reviewed as we come out of the pandemic.

61% of BCU's buildings now have water meter data loggers fitted and these have enabled closer scrutiny of water consumption across the estate. Significant reductions in water wastage have been achieved at Parkside Building, Seacole Building and the Doug Ellis Sports Centre. Water wastage previously accounted for around 17% of BCU's water consumption and currently represents 10%. Water wastage will be further targeted in 2021/22, with an aim to reduce to 5%.

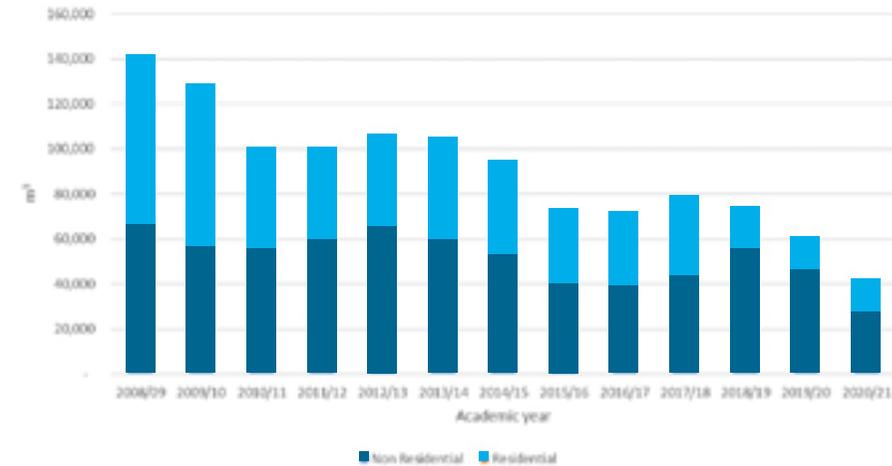


Figure 6: Residential and non-residential water consumption by academic year

In October 2020 BCU transitioned to a new water retailer, Castle Water. This move has enabled BCU to keep a much tighter grasp on charges as billing is more transparent.

Going forward we will:

- Install water meter loggers at STEAMhouse, the Pavilion Sports Centre, and Harborne Road
- Throughout 2021/22 further investigations will be carried out across the estate to establish where increased metering is needed and where water consumption can be reduced. There will be a particular focus on University Locks during this period.
- As part of building audit work, flow testing will be undertaken to identify where flow rates could be reduced. Audits will also identify where older sanitary ware could be upgraded, which will be fed into project planning.

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



4.1 Curriculum

Objectives and Targets	Status
By August 2020 sustainability has been integrated as a re-quirement 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:

During 2020/21, the Environmental Manager and Senior Education Developer ran a second cohort of the University's new 'Embedding Sustainability into the Curriculum' SEDA (Staff and Educational Development Association) course. The course supports BCU staff in reviewing a particular area of the curriculum they can impact on to embed sustainability.

Examples of sustainability enhancements developed for the course assessment include:

- **One Health workshop:** A university-wide workshop focused on SDG 3 Good Health and Wellbeing for students to consider health and sustainability;
- **Disability and Accessibility:** Development of a resource for academics to improve the representation of disabled people at BCU (SDG 10 Reduced Inequalities);
- **Luxury Jewellery Management MA:** Guest speakers discussed SDGs in relation to jewellery management, leading to additional workshops where students developed posters about the SDGs related to their course and discussed these as a group;
- **Textile Design BA (Hons):** Redesign of the Textile Processes module to focus on the impacts of textile production on the environment and resource consumption, allowing students to make informed decisions in their academic and social lives.

BCU's Research Fellow in Learning Disability and Mental Health Nursing, who developed the One Health workshop, presented this at the Royal College of Nursing International Mental Health Nursing Research Conference in June 2021 and consequently shared the workshop with attendees for them to use in their institutions. This demonstrates how the sustainability enhancements developed in the course are influencing beyond BCU and having a wider impact.

The value of the SEDA course has been recognised externally through being shortlisted as a finalist in the 'Next Generation Learning and Skills' category in the UK's Green Gown Awards. The awards will take place in November 2021.

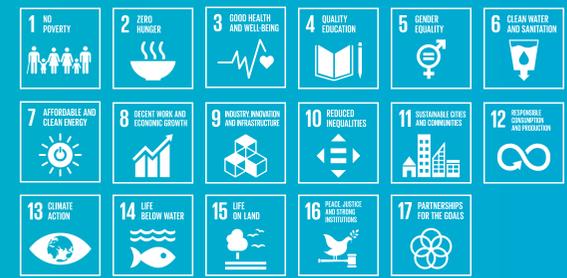
In July 2021, sustainability in the curriculum was included as one of the key themes of BCU's Learning and Teaching Conference. Speakers included our SEDA course External Examiner from Nottingham Trent University (NTU) and BCU colleagues presenting their sustainability enhancements from the SEDA course. The sustainability section of the conference had 33 attendees in total; 22 internal and 11 external including from NTU, Durham University, Bristol University and also internationally from Toronto and Pakistan.

An Education for Sustainable Development (ESD) MS Teams group has been set up for staff to create a network where colleagues can share queries, events and materials. This will support the development of a Community of Practice to help create further momentum in embedding sustainability into the curriculum.

The Environmental Manager has continued to provide support as part of the University's Periodic Review process. In 2020/21 the Schools of Engineering and Built Environment, and Social Sciences were both provided with support from the Environmental Manager. In 2021/22 the Periodic Review process will be reviewed and sustainability further embedded in the Course Approval process, linking both processes more closely with the Community of Practice and MS Teams group.



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



4.1 Curriculum

In other areas of the University, staff have been making further changes to the curriculum and leading on sustainability events for students and staff including:

- In October 2020, the Birmingham School of Architecture and Design (BSoAD) ran an interactive design challenge focusing on the challenges of designing sustainable communities and societies, hosted by the **Experimental Sustainability Studio (ESS)**, based around SDG 11 Sustainable Cities and Communities. The School continues to run its ESS which has also been shortlisted as a finalist in the Sustainable Champions category of the Green Gown Awards.
- BSoAD are also working with the ESS and BCC to **develop a framework for environmental justice**. Student work was shared with BCC Cabinet, Planning, Public Health and East Birmingham North Solihull Growth Corridor; and BCC Landscape Practice Group, working in Ward End and on the Ward End master plan. Students also worked with local community groups and collecting stories from community members as part of the EARTH stories project.
- School of Fashion and Textiles ran a **Fashion Revolution Week #IREMADEMYCLOTHES** in April 2021 with a series of Instagram workshops and MS Teams lectures including workshops on biomaterials, eco-dyeing and guest lectures on biomimicry and Carry Somers founder of Fashion Revolution.
- In July 2021, Parkside Building's third floor garden was populated with plants that produce natural dyes for colouring fabrics making a **Sustainable Growth Garden**. The plants will be used for our Textiles courses and includes plants such as marigolds, hollyhocks and rhubarb as a more eco-friendly option.
- A new Master's module, **'Art, Ecology and Global Change'** was approved in 2020/21 as an option for MA Fine Art, MA Art and Design and MA Arts and Project Management in 2021/22. The Environmental Manager will be delivering a lecture called 'The Art of Sustainability from Local to Global' as part of the module.
- A new School of English module **'Writing and the Environment'** has been developed, which is running for the first time in 2021/22.
- The Department of Built Environment have developed support material in the form of **IDEAS Charts and additional guidance** for embedding sustainability into the formal curriculum as well as encourage extra-curricular and community-based activities. Students and staff have started to formulate department-wide and course specific support material to inspire other students and staff to become sustainability aware and active.

- BSoAD and CEBE collaborated on delivery of the BA (Hons) **Design for Future Living** which has ESD at the core of all modules, a distinct focus on sustainable housing design and a new collaborative module between BA (Hons) Landscape Architecture and BA (Hons) DfFL called Sustainable Communities and Housing
- Other BSoAD developments include MA Landscape Architecture are delivering a new module in 2021/22 called **'Design For Climate Change'**
- Extinction Rebellion Architecture collaboration with CoLab Dudley developing strategies for **sustainable and inclusive high streets** and a BA (Hons) Product and Furniture Design collaboration with Wildlife Trust on designing ecology and bee habitats.

Going forward we will:

- Develop and build on the ESD Community of Practice
- SEDA course: Complete the second run of the course
- Continue to embed sustainability in the Periodic Review and Course Approval process
- Continue to embed sustainability in the curriculum and extra curricula activities, for example, the School of English virtual conference delivered called 'Literature, Place and Space' with an environmental theme. BSoAD continue with a programme of ESS pop up events with a focus on CoP26 early in 2021/22. The ESS has been integrated into the welcome week timetable for all ADM students.



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



4.2 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 2020/21, the Environmental Team delivered 25 events, engaging 936 staff, students and external stakeholders, exceeding our target to engage 200 staff and students. Events included:

- Sustainability Welcome Event including sustainable travel updates from TfWM and NX.
- An online lecture to 70 students for the Contemporary Management Issues module on 'Environmental management in the workplace'.
- Bike lock exchange event in Parkside Building, where 29 locks were exchanged.
- Hedgehog Friendly Campus events including a launch event, Working Group meeting and a fundraising quiz, where 10 teams helped to raise £166 for the British Hedgehog Preservation Society.
- Two Christmas workshops, teaching 45 staff and students how to make origami cards and Furoshiki gift wrapping.

- Worked with BaxterStorey for Fairtrade Fortnight in February 2021 to run cooking demonstrations and social media competitions, with University Locks Co-op contributing prizes. The School of Jewellery also ran a 'Responsible and Fair sources for Jewellery and Beyond' webinar, with four external speakers. 290 people registered, including people from other educational establishments.
- Ran a successful Go Green Week in March in conjunction with Graduate+ Week and Aston University, engaging 125 people. Events included Eco Eats, Natural Cleaning and Bats of Birmingham and the Black Country.

Communications:

An Environmental Communications Plan was delivered for 2020/21 and the Environmental Officer has developed a draft five-year Environmental Sustainability Communications and Engagement Strategy.

Over 100 sustainability related communications were delivered, primarily to staff via Tiger Today but also in student newsletters and external publications. Articles included raising awareness of the Clean Air Zone, sharing Plastic Free July advice from Environmental Champions and promoting Bike Month.

Environmental content has been added to the Undergraduate Prospectus for 2022/23 and the HELS 2021/22 Welcome Booklet, highlighting BCU's Environmental Plan, the work of the Environmental Team, and how students can get involved. The environmental content in the Accommodation Induction has also been updated.

The Environmental Champions network has grown to 75 members and there has been active engagement on the MS Teams group and at meetings. Meetings included discussing how to be sustainable when working from home and looking at systems change for sustainability. The SU Environmental Committee was put on hold throughout the pandemic, but we engaged regularly with the Earth Society on events and communications. The SU is reviewing signing up to Green Impact again and resurrecting their Environmental Committee.

The Environmental Team are now members of the Professional Services Partnership Group and are included in Professional Services communication materials to raise the profile of the team, what we do and how students and staff can get involved e.g. pop up banners and web content.

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



4.2 Engagement, Communication and Training

Training:

Environmental awareness training continues to be offered to new starters.

Spills training has been reviewed and converted into a Toolbox Talk and will be moved online when possible, along with the waste documentation training. When HR have the resources and the new training system is set up, we will work with them to make the environmental awareness training mandatory for all staff and develop the spills and waste documentation training.

Going forward we will:

- Finalise and publish Environmental Sustainability Communications and Engagement Strategy
- Carry out the 2021/22 actions from the Strategy
- Continue delivering Environmental Champions engagement and meetings
- Support the SU student Welcome Week
- Run a Go Green Week during the second week of COP26



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



4.3 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, linking to the environmental agenda and UN Sustainable Development Goals, for example, the 'Does urban greening benefit everyone? Social inclusion and exclusion of the 'greenification' of urban space in Moseley, Birmingham.'	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+:

As outlined in section 4.2 of this report, Go Green Week was run in March 2020 in conjunction with Graduate+ Week with a number of environmental events integrated as part of this. Environmental activities will continue to be integrated as part of the Graduate+ Weeks in 2021/22.

Sustainability remains a part of the Graduate+ attributes through Global Outlook. Longer term we will look to further increase the sustainability offering through the Graduate+ scheme, including links to the Hedgehog Friendly Campus scheme.

STEAMhouse and the Erasmus+ STEAM.INC Project:

The target to provide 15 businesses with 12 hours support was greatly exceeded achieving 30 businesses supported. Throughout 2020/21 there have been a number of STEAM Sprint workshops that addressed sustainability including:

- A workshop was held to **'Redesign the student learning experience at BCU'**. This covered sustainability issues and students developed ideas for more sustainable practices and methods of learning.
- **'Green Recovery'** brought together regional SMEs in a five-workshop series to tackle "How might we find ways for businesses - and the networks that represent them - to collaborate and act on climate issues in a post-COVID world?" We converted two participants businesses into STEAMhouse members to support their new idea development.
- **'Single-use Plastics in Construction'**, a three-workshop series, which brought together stakeholders from across dwellings construction and The Building Alliance to tackle 'How might we reduce the use of single-use plastics in the construction industry' - the process has supported the creation of two new PhDs at BCU.
- **'STEAM Sprint: Circular Economy'**, a three-workshop series, which invited STEAMhouse members to explore how they might make circular practices work for their business.
- 'Collaboration at BCC' brought together officers and elected members at BCC to tackle **'How might we improve interdepartmental collaboration to drive our R20 retrofit and social housing agenda?'** The 3 workshop series was designed to support teams to find ways to join up their efforts in reaching their Route to Zero Carbon ambitions.



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



4.3 Community Partnerships

The following STEAM members have delivered below projects:

- **Nocomoto Ltd** secured Innovate UK funding to work on developing a new prototype called Evolv365 - A weatherproof e-bike. A prototype has been built and tested physically and with consumer “focus groups”.
- **Sustainable Microclimates Ltd** created The BlowerBox (BB), a unique tool with integrated device for controlling humidity and pollution being developed for museums and art galleries so they can better protect their precious and vulnerable artworks from environmental decay caused by humidity and pollution. An improved prototype is currently being supported through the STEAMhouse Grants programme.
- **Clare Hewitt, photographer** designed and built 24 wooden pinhole cameras to be installed into a circle of 12 oak trees at The Birmingham Institute of Forest Research. The photographs produced from the cameras form part of a larger body of work, which is a visual study of the communicative and connected behaviour of the trees and their ecosystem. Online workshops were delivered during lockdown for people living in the area surrounding the forest who were experiencing isolation.

Partnership working:

BCU has continued to be a member of **BCC’s Route to Zero (R20) task group**. A section on BCU was included in the R20 Action Plan, outlining how the University’s research, studies and initiatives are supporting the city’s zero carbon target including STEAMhouse initiatives, retrofit training programmes linked to our BSoAD, and the EcRoFit tool mentioned below. The R20 Task Group has now become a Climate Assembly, and BCU continues to be represented on this group.

As part of the **Data Science Collaboration Project** BCU has been working with BCC to research and implement Traffic and Air Quality monitoring and prediction from council sensors data collected in the Clean Air Zone (CAZ), Ring Road and Outer City.

The **West Midlands National Park (WMNP)** project, spearheaded by BCU’s Professor of Landscape Architecture, is seeking to establish a national park for the West Midlands. A WMNP Lab has been created and the WMNP has been captured in the West Midlands Combined Authority (WMCA) climate actions, as well as BCC’s R20 Action Plan.

BCU has developed a partnership with Midland Heart housing association to support a housing development in Handsworth in Birmingham that will meet the proposed Government’s 2025 **Future Homes Standard**, providing an 80% reduction in carbon emissions through high fabric standards and low carbon heating systems. This demonstrator will test the feasibility in achieving the 2025 targets. BCU will provide in depth research on all aspects of the design and delivery of the homes to measure environmental performance, cost-effectiveness and work with residents to understand their experience of the new technology. BCU students will be involved in the project through core modules. The homes are due for completion by Easter 2022.

In 2021, BCU became a member of **Sustainability West Midlands (SWM)**, a not-for-profit organisation with a vision to guide the West Midlands to becoming a leader in contributing to the national zero carbon target by 2050. SWM are located in BCU’s incubator space, and will be moving to the new STEAMhouse building when this opens in 2022. This will support continued partnership working between the two organisations.

BCU have a dedicated India Group, Chaired by Deputy Vice-Chancellor, Prof Julian Beer. The **BCU India Group** are developing collaborative relationships in India between academia, business organisations and civil society to create new strategic projects. This will enable personal transformation and actual practical on-the-ground innovation, enterprise and research, particularly in the areas of sustainability.

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



4.3 Community Partnerships

Global Environmental Challenges Research Centre and other research projects:

BCU has continued to develop and deliver research identifying local, regional and global solutions to sustainability challenges.

Academics researching zero-carbon retrofitting have secured funding to develop the **EcRoFit tool** for assessing energy efficiency and renewable energy use in domestic and non-domestic buildings. This will enable businesses to identify the most effective retrofit and renewable energy solutions for their buildings.

Further research is being conducted to analyse the factors that affect users comfort and wellbeing including **indoor pollution and solar gain**, and the barriers to potential remedies in new build homes. The aim of the project is to propose cost effective scalable construction solutions and strategies that take account of human behaviours with the potential to improve the indoor environmental quality (IEQ) and reduce overheating in new homes. BCU are working with major home build partners, such as Barratt Homes, to conduct trials to monitor and record indoor air quality and evaluate the data obtained to propose cost effective solutions to improve air quality and thermal comfort in new developments.

A BCU research team, in collaboration with the University of Tokyo and Gorontalo State University in Indonesia, will deploy cutting edge technology across the Wallacea series of islands located between Asia and Australia to **record biodiversity and sources of bioenergy**, and identify routes for ecological management. The researchers will report interim findings at the UN's Climate Change Conference of the Parties (CoP26) in November 2021.

The Bio-resource and Bio-economy Research Group (BBRG) is working on a number of ongoing and new initiatives including:

- UK-India Educational Research Initiative (PI) Partnership Development Workshop – in collaboration with Panjab University in Chandigarh exploring the potential of Solar Pump-Based Village Microgrids – Potential for Tackling the Energy/Water/Food Nexus in Punjab. This will demonstrate the benefits of replacing grid connected irrigation pumps by **solar panel powered pumps** that are locally connected to form a village based microgrid. The project is being carried out in collaboration with Panjab University and has been funded by QR GCRF, British Council and Indian Department of Science and Technology. To complement this work BCU has installed **SmartGrid@BCU**; a solar powered, smartgrid on the rooftop of Parkside building. Working with PhD students, this project aims to improve the sustainability and efficiency of microgrids.

- Algae AD is a 4.8M Euro EU Interreg IVb project exploring the use of **algae for bioremediation** and conversion to animal feed. BBRG are a work package leader and undertaking scenario planning exercises including development of a techno economic assessment and environmental sustainability assessment as well as online decision support tools for stakeholders to understand and explore the opportunities from this technology.
- BBRG are members of the **Birmingham Biomethane Cluster (BBC)**. This is a group of regional stakeholders who are understanding and evaluating the opportunity for biomethane production for transport. BBRG is one of three academic partners who has expertise in the conversion of biomass for biomethane as well as economic/ environmental assessment of the processes.
- In 2020, BBRG completed a British Council, Newton fund Institutional links project with Partners in Indonesia. This project explored the **utilisation of macroalgae (seaweed waste) for energy production**. Since the project completed BBRG and partners at Brawijaya University and national stakeholders in Indonesia (including the Ministry for Marine Affairs and Fisheries) are developing a road map for technology deployment across the country.
- BBRG are also forging a collaborative relationship with colleagues in ADM and STEAMhouse, preparing and submitting bids to develop sustainable biomaterials from wastes e.g. marine biomass, food waste etc. BBRG was recently awarded a Faculty capital grant to explore this work further and develop projects with students in Engineering.
- BBRG are supporting PhD students in the areas of biomass cultivation, anaerobic digestion, water/wastewater remediation and sustainable biomaterials assessment development. The group are also leading on the development of a new curriculum based on environmental resilience, humanitarian/ human centric, engineering for net zero.

Going forward we will:

- Continue to include environmental events in Grad+ weeks in 2021/22
- Continue to have BCU represented on environmental forums such as Birmingham's Climate Assembly, Environmental Association of Universities and Colleges, and SWM
- 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
- Deliver research bids issued by the UK Research Councils as part of COP26 producing a climate change board game with disadvantaged youth in Balsall Heath (Birmingham) to engage with climate science and aid climate action at the neighbourhood level
- 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.

