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## Responding to the climate emergency: how are UK universities establishing sustainable workplace routines for flying and food?

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### ABSTRACT

Scope 3 emissions from the UK higher education sector are globally significant, and long-distance air travel and catering are particularly emissions-intensive aspects of workplace routine. They each present complex problems, as transition to low-carbon alternatives requires the reconfiguration of professional practices. This paper examines the sustainability policies of 66 UK universities to establish the extent to which planning and action in these areas are commensurate with climate emergency declarations. The findings indicate that universities recognize their role in creating demand for long-distance travel and sustaining high-carbon diets. However, few have specific emissions reduction targets or action plans that would rapidly and substantially reduce emissions in these areas. Discussion focuses on two core points; first, how greater cohesion in reporting and target-setting can be achieved across the sector to raise the ambition of targets and intervention; and second to identify opportunities for institutions to disrupt and reshape professional practices to reduce emissions in these areas.

### Key Policy Insights

- Reducing emissions in the higher education sector requires organizations to foster low-carbon academic practices by engaging with the systemic cultural and material conditions that support high-carbon academic practices.
- The establishment of robust targets, action plans and monitoring processes would further support sector-wide decarbonization, and require consensus across HE institutions and governing bodies.
- Sector-wide agreement on the level and pace of emissions reduction will help to accelerate ambition regarding Scope 3 emissions reduction and determining the appropriate contribution of different institutions will help identify where action is most urgently required.
- Findings suggest a need for absolute targets for emissions reduction associated with long-distance travel, and that food policies focus on achieving a volumetric reduction in the weight of meat served so that absolute levels of greenhouse gas emissions are reduced.
- Travel and food provision are complex aspects of university emissions, but a climate emergency framing requires all organizations to use their full range of influence to rapidly and substantially reduce emissions.


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## 1. Introduction

Escalating action on climate change requires organizations to renew their efforts to achieve a low-carbon transformation and use their full range of influence to effect change. This raises important questions for the treatment of Scope 3 emissions, hereby defined as indirect emissions that occur throughout the value chain of the reporting organization (WRI/WBCSD, 2011). Scope 3 emissions are all emissions not associated with fuel combustion, e.g. for energy or travel in vehicles owned or controlled by the reporting organization (Scope 1), or with the purchase and use of electricity by the reporting organization (Scope 2), and are typically the largest source of emissions for organizations in the service sector.

This paper examines the treatment of Scope 3 emissions within universities in the United Kingdom (UK), focussing on two intensive sources of Scope 3 emissions; long-distance business travel and catering. Emissions from the higher education (HE) sector are globally significant, and Scope 3 emissions are typically the most substantial portion of an institution's carbon footprint (Ozawa-Meida et al., 2013, Robinson et al., 2015). Yet Scope 3 emissions are under accounted for in university carbon management (Robinson et al., 2018, Cleveland et al., 2020). We aim to understand the extent to which university plans and actions in these areas are commensurate with climate emergency declarations, and make recommendations to support setting sufficiently deep targets and ambitious action.

The UK's Committee on Climate Change recognizes aviation and agriculture as sectors where it is very challenging to reduce emissions (CCC, 2019). In a workplace setting, both long-distance business travel<sup>1</sup> and catering are complex problems. Mobility scholars have shown that aeromobility has become deeply embedded in the institutional culture of HE, with individual career progression and institutional standing linked to international mobility (Glover et al., 2017, Hopkins et al., 2019). Similarly for meat-eating, empirical research shows how coordinated developments across spaces of production and consumption sustain diets that are high in meat-based meals (Twine, 2017, Neuman et al., 2020), and this is no less true in workplace cafeterias and catering (Garnett et al., 2019). Subsequently, reducing emissions associated with long-distance business travel and catering requires the reconfiguration of professional practices and institutional policies to enable low-carbon transformation.

In this paper we examine developments on these aspects of Scope 3 emissions within greenhouse gas mitigation policies in the UK Higher Education (UK HE) sector. Section 2 describes recent developments in the global climate change mitigation agenda and introduces universities as a site for mitigation. Section 3 then describes the sample and method used to examine universities' reporting and actions. Section 4 examines university's sustainability policies and action plans to reduce emissions associated with aviation (Section 4.1) and catering (specifically meat-consumption) (Section 4.2). Section 5 discusses how ambiguities surrounding Scope 3 emissions have affected target setting in UK HE to date, how greater cohesion in reporting and target-setting might be achieved to raise ambition, and how insights from the social sciences can identify opportunities to reshape professional practices to reduce emissions in these areas.

## 2. UK universities and the climate emergency

The Paris Agreement (UNFCCC, 2015) is an international commitment to keep global average temperature rise in the twenty-first century well below 2°C of pre-industrial levels and pursue efforts to limit temperature rise to 1.5°C. The need for immediate action established by the Paris Agreement was underscored by the Intergovernmental Panel on Climate Change Report on 1.5°C (IPCC, 2018), which highlights the elevated risks as warming increases and a limited window to act to avoid impacts. If the below 2°C temperature threshold is to be achieved, the global carbon budget – the cumulative emissions that remain permitted – is limited (IPCC, 2018). Yet to date, the urgency conveyed in these documents is not reconciled in country commitments (du Pont and Meinshausen, 2018). Anderson et al. (2020) show that if the Paris Agreement principles of 'equity' and 'common but differentiated responsibilities' are fully applied, the UK's share of the global carbon budget should be half the size of the budget currently implied by the UK's current legislative target, approximately doubling the required rate of annual emissions reductions.

Demands for more significant and urgent action on climate change are rising through various channels including scientific assessments, public demonstrations and citizens' assemblies. Amidst these campaigns, calls for recognition of the 'climate emergency' have been picked up by national and sub-national governments and commercial sectors (see for example the Business Climate Emergency Network and The Music Declares Emergency Working Group). The first climate emergency declarations in the UK occurred in November 2018, when Bristol City Council declared a climate emergency for the city (Bristol City Council, 2019). By October 2020, 74% of District, County, Unitary & Metropolitan Councils in the UK had declared a climate emergency (UK CEN, 2020), and by April 2020, 1,482 jurisdictions in 28 different countries, including the European Union (Climate Emergency Declaration, 2019), had declared climate emergencies. In 2019, the UK Climate Change Act target was amended from the previous 80% reduction in CO<sub>2</sub> by 2050, to instead aim to reach 'net-zero' emissions by 2050 (HM Government, 2019).

Following the first climate emergency declaration from Bristol University in April 2019 (UK CEN, 2019a), more than 20 UK Universities had formally declared it by January 2020 (UK CEN, 2019b) and the Office for Students drafted an approach for sector-wide emissions reduction aligned with the UK Government's net zero target (OfS, 2020). Universities are an important site for climate action; where climate experts can be observed 'walking the talk' (Osborne et al., 2019) or not, as recent research has shown (Whitmarsh et al., 2020). Academics have emphasized the importance of climate action for a long time, highlighting asymmetries in national-level policy responses (Boston and Lempp, 2011), and demonstrating the significance of social, material and political aspects of solutions (Welch and Southerton, 2019, Larkin et al., 2020). Many academics supported the climate emergency movement with articles (e.g. Jackson, 2019, Maslin and Lewis, 2019) and open letters (THE, 2019). Furthermore, support for climate action has grown within the student body (NUS, 2019), such that universities and their regulators recognize that insufficient action risks losing income and reputation (OfS, 2020).

The HE sector is diverse. For example, universities vary substantially in size with student numbers ranging from 130 at Gower College Swansea, to more than 40,000 at the University of Manchester and University of Leeds (HESA, 2020a). Most universities undertake a mixture of research and teaching, nevertheless, the relative weight of these activities differs, with universities such as De Montfort and Birmingham City receiving more than 85% of their income from tuition fees, compared to an average of 59%, and Imperial College and the University of Manchester gaining more than double the institutional average income from research (HESA, 2020b). Likewise, there is variation in the relative importance of income from international students. 30–55% of a typical Russell Group<sup>2</sup> university's income comes from tuition fees and between 17 and 35% of their students are from outside of the EU. By comparison Post-1992 Universities<sup>3</sup> typically receive between 65 and 84% of their total income from tuition fees, but less than 15% of their students come from outside of the EU (Kernohan, 2020). Therefore, despite teaching activities generating a higher proportion of income, Post-1992 universities are less reliant on internationalization, itself a high-carbon business model.

Emission profiles vary across institutions in the HE sector; however overall Scope 3 emissions are the most substantial portion of the sectors carbon footprint. In 2012, an attempt to map the consumption-based carbon footprint of UK HE sector estimated that Scope 3 emissions represent at least 60% of total emissions in the sector (i.e. Scope 1, 2 and 3 combined), approximately 5.4 MtCO<sub>2</sub> (HEFCE, 2012a). There are considerable uncertainties associated with measuring Scope 3 emissions, and variations in the quality and consistency of data reporting (Robinson et al., 2018). It is therefore unsurprising that institutional estimates of Scope 3 emissions vary. Manchester Metropolitan University estimated their Scope 3 emissions to be approximate 83% of the university's total emissions in 2017/18 (MMU, 2019). The University of Cambridge estimated Scope 3 emissions to be in the region of 70% of total emissions for 2012/13 financial year, with 9% of these arising from business travel (AECOM, 2014). Exeter University's Environment and Climate Emergency Working Group report:

We have far less data available for indirect emissions (Scope 3) [than for Scope 1 and 2 emissions] but they likely account for at least 76k tCO<sub>2</sub>e/annum (~84%) of our emissions, particularly from all the goods we purchase (procurement 61%), our travel footprint (21%) and some investments (2.4%). The data gap is not unusual for the sector but must be rectified quickly. (Osborne et al., 2019, p. 3)

Exeter's reporting alludes to both the scale of Scope 3 emissions and the paucity of data and is indicative of the depth and scale of action required to mitigate emissions associated with all business practices.

**Table 1.** Sample by key characteristics ( $n = 66$ ) (Full details available in Supplementary Data).

	Num. reviewed	Num. in UK HE	% of total in UK HE reviewed
<i>By size of student population (all students) (Source: HESA, 2018/19)</i>			
Small (<6500 students)	3	50	6%
Small-medium (6501–15,899 students)	18	44	41%
Medium-Large (15,900–24,999)	23	44	52%
Large (>25,000 students)	22	26	85%
<i>By university group</i>			
Post-1992	32	76	42%
Russell group	19	24	79%
<i>By People and planet league position (source: P&amp;P, 2019)</i>			
1st	23	29	79%
2:1	15	31	48%
2:2	18	35	51%
3rd	8	28	29%
Failed	2	30	7%

### 3. Method

This article draws on qualitative textual analysis of UK university sustainability policies and action plans. There are approximately 165 HE institutions in the UK; here publicly available documents from 66 universities were reviewed to identify strategies related to long-distance business travel and catering (specifically meat-consumption). Table 1 presents a summary of the sample, which includes a mix of institutions by size, classification (i.e. Russell Group and Post-1992 establishments) and their performance in the People and Planet league.<sup>4</sup> The sample also includes all 29 universities that had declared a climate emergency (as of March 2020) and all universities that scored more than 60% for sustainable food in the People and Planet 2019 assessment. The sample is therefore not representative of UK universities but designed to provide an indication of progress throughout the UK HE sector.

Document analysis was used to understand the extent to which air travel and meat-eating are addressed in university sustainability policies, and the extent to which actions in these areas are commensurate with addressing the climate emergency. For each university, policy documents including Carbon Management Plans and Annual Reports, Travel Plans and Sustainable Food Policies were downloaded, catalogued and reviewed. Where available, draft policy documents written in response to the university's climate emergency declaration were also reviewed. The review was limited to publicly available, university-level documents, though we recognize that departments and working groups within many universities are engaged in initiatives that include both aviation (e.g. Tyndall Centre travel strategy 2014) and food (e.g. University College London's 'Powered by Plants'), and there is also evidence of important successes in these small-scale activities emerging in the literature (Garnett et al., 2019).

Textual analysis of accessible documents was undertaken by reviewing documents in full, as well as conducting targeted word searches using the terms 'flight', 'fly', 'air travel', 'business travel', 'international', 'domestic' and 'flights' to examine air travel, and 'animal', 'meat', 'ruminant', 'beef', 'meat-free', 'vege\*', 'vegetarian', 'vegan' and 'low-carbon' for meat-eating. In each instance that these terms occurred, the review ascertained whether a strategy or action was designed to reduce emissions. For each university, and for each of the two areas, the analysis assessed whether baseline emissions were known, whether there were targets for emissions reduction, and what actions each institution reported to be taking to reduce emissions. The results of this analysis are presented in the following sections (a summary of each university strategy is provided in Supplementary Data).

## 4. Results

### 4.1. Long-distance business travel

Long-distance business travel is a normal part of university business, enabling field trips, international conference attendance, and participation in international knowledge exchange. However, long-distance travel is

disproportionately reliant on aviation, which incurs considerably higher emissions per passenger kilometre than other modes of transport. For example, the carbon emissions for different modes of flight are 0.25 kg CO<sub>2</sub>e for domestic flights, 0.2 kg CO<sub>2</sub>e for long-haul flights or 0.16 kg CO<sub>2</sub>e for short-haul, compared to 0.01 kg CO<sub>2</sub>e for Eurostar and 0.04 kg CO<sub>2</sub>e for domestic rail (BEIS, 2019). Reducing air travel, either by avoiding trips or by modal shift, is therefore the single most effective means of reducing universities' long-distance business travel emissions.

Aviation emissions vary substantially across institutions, as they relate to travel routines of staff and students. It should also be noted that institutions gather this data in different ways, nevertheless, broad comparisons can be made. For example, the University of Edinburgh estimate business travel emissions to be approximately 11,909 tonnes CO<sub>2</sub>e in 2014/15, almost 9% of the university's total emissions with air travel contributing approximately 94% of this (UoE, 2016a). This is broadly consistent with the University of Cambridge, where business travel is estimated to be 15,485 tonnes CO<sub>2</sub>e and 6.3% of the university's total emissions (9% of Scope 3 emissions), of which 95% is attributed to air travel (AECOM, 2014). Though much smaller in terms of absolute emissions, Nottingham Trent University similarly illustrates the importance of air travel; with business travel estimated to be around 3000 tonnes CO<sub>2</sub>e in 2017/18 and air travel accounting for 85% (NTU, 2018). Glasgow Caledonian University estimates business travel emissions in 2013/14 to have been 1804 tonnes CO<sub>2</sub>e, of which flights contributed 96% (GCU, 2015). Air travel is particularly important as emissions are reportedly growing. The University of Edinburgh observes that business travel emissions 'may be responsible for as much as 25% University's [total] carbon emissions [by 2025]' (UoE, 2016b). Edinburgh is by no means exceptional in their business travel, however few other universities have comparable monitoring and reporting strategies.

#### 4.1.1. Inclusion of long-distance business travel in university sustainability targets

The findings indicate that many universities recognize their role in creating demand for travel, and their responsibility for enabling fewer trips and modal shift. Nevertheless, most universities exclude long-distance travel emissions from their reporting, and few have targets and action plans designed to reduce air travel (though with several noteworthy exceptions). Of the 66 universities reviewed, 23 explicitly acknowledge the contribution of air travel to their emissions, and 12 were found to have quantitative targets to reduce emissions. Examples of air travel reduction targets are given in Table 2, which demonstrate the variety of institutional level targets in the higher education sector.

The targets are evidently varied in the scale of emissions reduction sought, the timeline to achieve these reduction, and their focus (e.g. whether they include international flights). They also vary in the nature of the target set and whether these are absolute reductions in emissions, or relative (i.e. per student or staff FTE or per £ targets). The sector would benefit from agreeing what level of emissions reductions are appropriate to align with climate emergency declarations. The sector as a whole should consider greater levels of reduction

**Table 2.** Examples of air travel reduction targets (Full list available in Supplementary Data).

HE Provider	Target
Glasgow Caledonian University	5% annual reduction in distance flown (km) within the UK (without international onward travel).
The University of Brighton	Reduce emissions from business air travel by 5% per student FTE by 2020/2021.
The University of Cambridge	Reduce per capita emissions from air business travel by 25% against 2014/15 levels by 2024/25, taking into account current under-reporting.
The University of Glasgow	By 2020: <ul style="list-style-type: none"> <li>• 10% reduction in domestic air passenger km from 2014/15</li> <li>• No increase in emissions from international business air travel per employee from 2014/15</li> </ul>
The University of Manchester	Reduce business air travel by 12% by 2022 against a baseline of 83 million km in 2014/15.
The University of Sussex	Reduce air travel emissions for business use by 10% by end of 2021 (from 2011 baseline of 495 tCO <sub>2</sub> e)
University of Worcester	Maintain the ratio of business air travel emissions to international student FTE at 68.5 tCO <sub>2</sub>

as, if global access to aviation continues to increase, current high-frequency travellers would have to reduce their usage to compensate for more equitable access (Graver et al., 2019). The University of Exeter's Climate Emergency Working Group propose an institutional target to reduce business travel emissions by 50% by 2025 and 75% by 2030. If this were taken as a sector leading level of ambition, then few universities have policies that aim for emissions reduction of the scale and urgency required. There are differing views about the level of mitigation needed in aviation, with new fuels, negative emission technologies (NETs), and decarbonization in other sectors possibly allowing for slower rates of mitigation. However, with no immediately available low-carbon fuel nor any proven NETs functional at scale (Larkin et al., 2018), the only prudent approach is to reduce demand. Relative targets for aviation emissions could allow overall emissions to rise. By comparison, the absolute targets set by the Universities of Cambridge, Sussex, and Manchester would cap overall absolute emissions from this source, therefore demonstrate the type of target needed.

There are also targets within university policies that are intended to improve the quality of reporting and establish a more accurate baseline. Historical underreporting of Scope 3 emissions, and particularly of long-distance business travel, deprives universities of a robust baseline against which to monitor change. Furthermore, in the early years of monitoring change, it is likely that reported travel emissions will rise, regardless of changes in travel, as data is captured more effectively. This issue is acknowledged in the University of Cambridge's target, and in several universities' travel plans with strategies to remedy underreporting. A key challenge is to ensure the complete capture of trip data (including destination and origin). We observe several universities implementing policies to ensure that trips are only booked through agents capable of recording this data (e.g. University of Plymouth and University of Arts, London), and others improving processes to capture data for trips booked outside the travel booking agent (e.g. Aston University), however many universities are yet to implement these actions.

#### **4.1.2. Action to reduce air travel in UK universities**

This review sought to identify actions underway to reduce air travel in UK universities, finding that even without targets and baseline data, several universities are acting to reduce emissions associated with air travel. Actions include: eliminating air travel to Eurostar destinations in favour of high-speed rail (e.g. Universities of Brighton and Greenwich); prohibiting business and first-class flights (e.g. University of the Arts, London and University of Manchester); and prohibiting domestic air travel (e.g. University of Exeter). Few details are provided to explain how these targets will be implemented, though both voluntary and prohibitive measures are described. Voluntary measures encourage individual members of staff to reconsider long-distance travel. These decisions are encouraged by making information on emissions available in travel planners and booking systems and providing tools such as travel hierarchies to define and justify the need for travel (e.g. University College London and University of Central Lancashire). Prohibitive measures typically involve additional approvals at a senior management level, making it more difficult to book high-carbon journeys (e.g. University of Greenwich, Manchester and University of the Arts, London).

Though individual action and prohibition are likely to play a part in reducing emissions, research suggests a need for more fundamental changes to the cultural and material conditions within which professional routines arise if substantial reductions are to be achieved (e.g. Süßbauer and Schäfer, 2019). The literature emphasizes the importance of enabling sustainable workplace routines, which requires provision of elements to allow participation in alternative practices that give access to services (e.g. international reputation and knowledge exchange) without air travel (Glover et al., 2019, Hopkins et al., 2019). To these ends, several universities were found to include actions to enable remote participation as a means of avoiding long-distance travel, most commonly by improving videoconferencing facilities and ensuring training is provided. This was a common action in many university plans, however the University of Oxford stands out as they propose to review the use of videoconferencing for activities such as first-stage interviews and examinations, where specialists would otherwise fly in for very short visits. This recognizes that videoconferencing is a valuable demand reduction strategy for general business travel, but can also be appropriate in settings where in-person communication has become engrained.

These findings suggest that some universities are attempting to reduce travel demand by creating alternative means for staff to engage in everyday activities (e.g. meetings and seminars) and for those that require

travel for very short periods (e.g. exams and interviews). However, remote working has been found to supplement, rather than replace, corporeal interaction (Storme et al., 2017) as flying is deeply engrained in the expectations of academics and institutions. Though Wynes et al. (2019) found no relationship between air travel and productivity, Nursey-Bray et al. (2019) found flying to be sustained by the fear that abstinence could negatively impact one's career. For many, career progression requires evidence of international network building and knowledge exchange for promotion and research income<sup>5</sup> (Higham et al., 2019).

It is not only individual academic careers that have become dependent on international recognition and presence. Institutions increasingly rely on their international reputation to drive student recruitment, which is a major source of income. This is recognized in several cases (e.g. University of Aberdeen). Glover et al. (2017) note that 'it is difficult to envision' universities reducing air travel without resisting internationalization, and it is essential that strategies attend to the systemic connections between individual academic flights and the sector-wide internationalization agenda. Reconfigured expectations that allow for virtual and remote participation, and value local forms of scholarship and impact need to proliferate throughout competitive processes (Le Quéré et al., 2015, Schrems and Upham, 2020), and drive investment into modes of research and teaching that reduce the need for physical co-presence (Glover et al., 2019, Hopkins et al., 2019).

King's College London were the only institution found to examine the issue of equality in air travel, finding that the top 1% of fliers by emissions produce more emissions than the bottom 50% (KCL, 2019). The unevenness of air travel is widely recognized in the literature. Existing research by Wynes et al. (2019) suggests that established academics are responsible for more emissions than early-career academics despite pressure on early-career academics to establish international reputations and networks (see also Whitmarsh et al., 2020). Ackers (2008) finds expectations of aeromobility inhibit the inclusion of foreign academics on restricted visas, disabled academics and those with care commitments that prevent long-distance travel. The view that air travel is necessary in an academic career is also not universal (Higham and Font, 2020, Schrems and Upham, 2020), and the link between academic mobility and career can impact negatively on those who reject this culture, or are less able to participate (Ackers 2008). Consequently, failing to disrupt the model of aeromobility ensures an unsustainable and inequitable future for HE (Glover et al., 2019), so there is need for far greater attention to equality and inclusivity in university's decarbonization plans. Action to improve equality and sustainability would be supported by more granular reporting of business travel.

## 4.2. Catering

Catering is also a significant aspect of university business; covering bars, restaurants and cafes, as well as event catering and catered accommodation. Scope 3 emissions are the largest proportion of emissions arising from catering (Jungbluth et al., 2016, Cerutti et al., 2018), as this category includes all emissions associated with food except energy use (e.g. for heating and lighting food establishments and cooking food) or travel in vehicles controlled by the reporting organization (these are categorized as Scope 1 and 2). Though emissions associated with catering at UK universities are likely to be substantial, attempts to quantify their contribution are uncommon, a finding echoed in other country contexts (e.g. Cleveland et al., 2020). The University of Exeter estimates emissions associated with food procurement to be approximately ~15% of emissions associated with procurement (Scope 3), which in turn are approximately 61% of the university's total emissions (and approximately 8,400 tonnes CO<sub>2</sub>e per annum) (Osborne et al., 2019). The University of Cambridge estimates catering emissions (Scope 3) were approximately 1,500 tonnes CO<sub>2</sub>e per annum prior to the implementation of their sustainable food strategy (UoC, 2018). Gu et al. (2019) estimate that the supply chain emissions from purchased meat alone result in 431 tCO<sub>2</sub>e at Keele University, 3% of the university's total carbon footprint and 89% of emissions associated with food provision. The prevalence of meat and dairy products is the single greatest determinant of the scale of emissions in catering, given the high emissions associated with ruminant animals (Berners-Lee et al., 2012, Willett et al., 2019). Other factors include food waste, seasonality of produce (which determines the level of climate control involved in production), and the mode and distance involved in transporting foodstuffs (Hoolohan et al., 2013).



Obtaining data and robustly estimating catering-related emissions is difficult and there are different methods used to estimate emissions. The simplest method is to use spend data from procurement datasets, as is the case in Exeter's estimate above. This method relies on a single emission factor (kg CO<sub>2</sub>e/£) to characterize emissions from all types of food, thus offers limited ability to monitor the impact of actions, such as changes to menus, however it is straightforward to collect. Alternatives require information such as the weight of purchased foodstuffs, in order to apply appropriate emissions factors (Berners-Lee et al., 2012, Gu et al., 2019), as is the case in Cambridge and Keele's estimates. This method increases capacity to monitor change, however it is more laborious to obtain and validate data, and risks creating gaps where data is unavailable (EAUC, 2018). Another challenge is the lack of standardized reporting boundaries. In the examples above, Exeter includes all hospitality and catering services on campus, while Cambridge focus on services managed by the University Catering Service but exclude emissions from the university's 31 independently managed colleges. The former is advantageous as it provides more inclusive coverage of catering services, giving a more accurate picture of emissions and a better baseline. However, obtaining data can require many contractors to cooperate and align the data of different quality and granularity. This is not only a reporting challenge, but also signals that ownership and responsibility for catering emissions is a complex picture for universities, many of which own and manage services as well as renting space to other service providers.

#### 4.2.1. Inclusion of catering emissions within UK university sustainability targets

The most impactful action to reduce catering-related emissions is switching the balance of meat away from high-impact meats (beef and lamb) and dairy products to low-impact meats (pork and poultry), and meat and dairy alternatives (Berners-Lee et al., 2012, Hoolohan et al., 2013). Of the 66 universities, 51 were found to have publicly accessible sustainable food policies, of which 28 explicitly recognize the importance of reducing meat, containing statements of intent such as 'reduce the amount of foods of animal origin (meat, dairy products and eggs) and promote meals rich in fruit, vegetables, pulses, wholegrains and nuts'. (University of Salford) [or] 'Reducing the amount of foods from animal origin (meat, dairy and eggs) served, as livestock farming is one of the most significant contributions to climate change' (Cardiff University). This is consistent with a reorientation from a focus on certification (e.g. Fairtrade and Free range) and animal welfare (e.g. Red Tractor), towards objectives that recognize the emissions associated with food production, which is evident within the sustainability policies of many universities.

Recent updates to sustainable food policies (post-2017) have seen more universities explicitly recognizing meat-eating as an area for potential action on climate change. However, only five universities were found to have quantitative reduction targets. These are summarized in Table 3.

The variety of metrics used in the meat reduction targets are indicative of the different methods used to account for emissions. Difficulties measuring emissions mean that targets are better directed to changing the material flow within catering so, unlike flying, targets for food would not directly reference emissions reduction but focus on reducing the volume of meat served, which is the case in most of the quantitative targets identified. This is preferable to targets linked to spend data (e.g. University of the West of England) as it ensures a volumetric reduction in meat served, and therefore emissions, however spend data can be much easier to collect and monitor. The University of Bristol's Draft Sustainability Strategy is unique in that it introduces a specific target to reduce the emissions intensity of food provision, requiring the mapping of emissions.

**Table 3.** Examples of meat reduction targets (Full list available in Supplementary Data).

HE provider	Meat reduction target
The University of Bristol	Provisional: Map carbon related to all food and drink and reduce it by 30% by 2021.
University College London	Reduction in meat content of meals (10% on annum)
University of Gloucestershire	Ensure that percentage of vegetarian and vegan offer increases annually. Current baseline 60%. Minimum 2% increase year on year.
University of the Arts, London	Reducing meat consumption by 5% year on year
University of the West of England	Decrease meat consumption by 10% in terms of overall sales of main meals at University outlets.

All the sustainable food policies containing specific targets and references to reducing emissions were among the more recent (post-2017), however it is not the case that these targets necessarily followed climate emergency declarations. For some universities, meat reduction has been a strategic focus for some time and the earliest references to meat reduction (2011–2013) are positioned as actions to improve the nutritional quality of meals procured on campuses. For example, Staffordshire University pledged to reduce meat from ruminant sources in their 2011 sustainable food policy primarily for health reasons, with animal welfare, environmental benefit and cost saving cited as secondary objectives.

#### 4.2.2. Action to reduce meat consumption in UK universities

Despite the relative infrequency of quantified targets and a paucity of data, some universities are actively trying to catalyse change. In some cases, this is occurring through voluntary actions, such as vegetarian cafés, meat-free days and menu reprofiling, and through prohibitive actions such as banning meat (e.g. University of Cambridge<sup>6</sup>), and reducing portion sizes (e.g. University of St Andrews and Newcastle). Such actions disrupt taken-for-granted dietary habits, and seek to increase the accessibility of less carbon-intensive meals (Hoolohan et al., 2016, O'Neill et al., 2019). Other universities are implementing actions to normalize meat-free meal provision, for example Imperial College London, having trialled Meat Free Monday, discontinued the initiative in favour of stocking a wider range of vegetarian and vegan options as standard. Many other universities seek to raise awareness of food's climate impacts and to promote plant-based diets through menu redesign (Glasgow Caledonian and Gloucestershire) and by providing information to highlight sustainability and health concerns at the point of sale (University of Edinburgh).

As providers of food services, universities are part of the infrastructure system of food provision, and also play a role in the organization of cultural expectations, consumption norms and motivational structures that guide everyday consumption (what Welch (2020) refers to as teleoaffective formation). Though many actors and wider societal developments contribute to the teleoaffective landscape of food, universities influence what is generally, publicly, and normatively understood to be 'proper food' (Marshall and Anderson, 2002). Süßbauer and Schäfer (2019) call for organizations to implement measures that go beyond 'nudging' behaviour – interventions involving menu redesign and informational cues – to embed sustainable routines in the workplace. In practice, this requires that organizations consider ways of enabling experimentation with less carbon intensive diets. This could include meat-free days, for example, but could also entail measures to normalize low-carbon practices beyond these occasions. Such actions are presently underrepresented in sustainability policies.

O'Neill et al. (2019) emphasize 'sharing spaces' as a possible way of nurturing sustainability food practices within organizations. There is evidence of such action on university websites, with initiatives led by different parties within the university (not least student unions and societies, research groups and catering teams), and where universities have joined external movements, such as the *Sustainable Restaurants Association* and *Vegetarian Society*, which provide learning opportunities. There are also examples of more ambitious emissions reduction activity taken at a sub-university level. For example, the University of Manchester's Methods Manchester working group has implemented a meat-free catering policy for events, and University College London has a department level 'Powered by Plants' initiative that provides vegetarian event catering. These initiatives exceed the scope of actions specified in most universities' sustainable food policies, evidencing deeper experimentation, for example, with meat-free catering occurring at smaller scales. In most cases, reporting of initiatives is disconnected from institutional planning, target-setting and monitoring, and would benefit from inclusion to allow for their impact to be assessed and to share learning.

## 5. Discussion

Long-distance business travel and catering are two particularly intensive aspects of workplace emissions. This paper demonstrates a range of best practices in university level policy and actions intended to reduce the emissions associated with catering and long-distance business travel. Although many universities omit these aspects of Scope 3 emissions from their reporting, their importance is widely recognized and there is evidence of pioneer institutions that are implementing ambitious targets and actions to reduce such emissions. In this final section we briefly reflect on the nature of actions taken to further reduce emissions in these two fields.

### ***5.1. Fostering low-carbon academic practices through systemic change***

Both meat-consumption and flying are complex everyday aspects of academic routine, yet because the climate emergency framing demands emissions reductions in every aspect of professional routine, it requires an expanded remit of institutional influence. Voluntary and prohibitive actions to reduce long-distance business travel and catering emissions are commonplace and commendable. However, reducing emissions requires that universities participate more fully in reconfiguring the system within which unsustainable workplace practices arise. The social science literature on organizational practices and sustainable consumption provides guidance to inform this. This literature recognizes various ways in which employees contribute to organizational sustainability strategy and how these are conceptualized – from initiatives designed to encourage employees to reduce demand (e.g. to switch off lights and go ‘paperless’), to those that prohibit or discourage unsustainable actions (e.g. additional sign-off for flights), and those that position the workplace as a site for purposive collective action on climate change (e.g. active travel initiatives) (Hargreaves, 2011, O’Neill et al., 2019, Süßbauer and Schäfer, 2019).

Workplace behaviour, as in any other setting, is highly routinized. It is embedded in spatially and temporally contingent patterns of daily life, and co-evolving with wider social, political and material developments. This poses a challenge and concerns have been raised that actions within organizations overinvest in behaviour change, without addressing the systemic nature of workplace routine (Glover et al., 2019, Süßbauer and Schäfer, 2019). For air travel, the HE sector needs to address the institutional cultures and professional practices (e.g. research funding, marketing, staff promotion) that entrench aeromobility in academic work to ensure a sustainable and equitable future. For meat-eating, systemic action is similarly needed, though in this instance directed to ensure that food provision on campus enables experimentation with, and normalization of, plant-based eating. Eating is a collective practice. Not only are meals frequently shared with others, but what we eat, when it is eaten, and in what form a meal takes are all shaped by collective social and material conditions (Hoolohan et al., 2016). Therefore, universities must not only make plant-based meals available, but also consider platforms to enhance the social legitimization of low-carbon eating.

This review has found evidence of some universities involving themselves in a deeper restructuring of working routines to reduce emissions associated with both flying and food. These aspects of university decarbonization strategy suggest the beginnings of a more systemic approach to sustainability than has typically been observed. However, action in these two areas is not yet widespread and there is a need for greater effort to extend and stabilize low-carbon routines. In order to do so, existing research suggests that greater attention be paid to the connections between individual routines and wider developments both within and outside of HE. In the case of flying, assumptions regarding the ongoing international expansion of research and teaching activities must be challenged, particularly any model of internationalization that depends upon corporeal interaction. In the case of food, there is a need for wider recognition of the role universities play – as caterers – in maintaining demand for high-carbon meals.

### ***5.2. Ensuring robust targets, action plans and monitoring processes for sector-wide decarbonization***

There is a lack of direction on management and reporting of Scope 3 emissions, with organizations such as the Higher Education Funding Council for England (HEFCE) historically providing reporting guidance for only limited Scope 3 sources (HEFCE, 2012b, 2012c, 2012a). Difficulties in establishing robust baselines are a barrier to setting quantitative targets to reduce absolute emissions associated with aviation and food. However, the lack of clear guidance also creates ambiguity as to whether targets set, and measures taken, are proportional to the climate emergency challenge. There are no established processes to ensure current best practice is sufficient and that ambition increases over time. Out of necessity targets are rooted in best available data rather than the most robust metric for reducing emissions, resulting in universities setting relative, rather than absolute targets (e.g. reductions per student). Setting relative targets creates the possibility that reductions in emissions will be insufficient to deliver absolute emission reductions or the rate of decarbonization internalized in, and expected by, the climate emergency framing.

Following changes to the governance of UK HE, the final year of mandated emissions reporting for most UK universities was 2018–2019 (OFS, 2020). Yet, determining what a proportional response to the climate emergency means for the HE sector in terms of absolute emissions reductions requires a more overarching, collective approach to environmental reporting than is currently observed. As the reports reviewed in this study illustrate, reducing flights and high emission foods are commonly accepted goals, but how fast and how far mitigation action can proceed is not yet commonly agreed. A common approach could also reduce barriers in data collection by pooling institutional resources to determine proportional action through analysis, and set science-based targets that reflect the depth and scale of change needed to respond to the climate emergency.

If league tables are to be used to monitor emissions reduction, there are methodological issues that must be addressed. For example, though People and Planet includes Scope 3 emissions, this is only partial (People & Planet, 2019). Universities are scored 5% for setting a baseline and 5% for a target on six environmental sustainability themes. As the evaluation relies on website searches and HESA Estates Management Record (EMR), institutional variations in the quality and inclusivity of Scope 3 reporting are not resolved. Though universities can attain 70% of their Carbon Management score in the People and Planet league for addressing Scope 3 emissions, Carbon Management is worth only 7% overall. It is therefore questionable as to whether positive action is encouraged, given the resources involved in attaining and analysing data (Robinson et al., 2015). Furthermore, the same credit is given to institutions that include flying as those that do not. Similarly, for food, though the variety of sustainability concerns associated with food are well summarized in the People and Planet approach, 20% of the Sustainable Food score (worth 4% overall) is awarded for evidence of action being found in 5 of 13 areas. ‘Meat and dairy reduction’ is one of these areas, and is therefore treated proportionately to measures such as switching to organic milk, free-range eggs and Fairtrade goods. Though these are worthwhile objectives, the weighting given to these different actions – and that a top-ranking university needs to show action in only 5 of 13 areas – reduces incentive for organizations to focus their efforts on changes that deliver timely emissions reduction.

## 6. Conclusion

This paper demonstrates that action on climate change in universities is extending beyond the familiar focus on energy related emissions to engage in more complex workplace practices, including long-distance business travel and catering. However, increasing sector-wide effort is unavoidable if universities are to fulfil their climate emergency declarations and align emissions reduction strategies with the UK Government’s net zero ambitions.

With respect to air travel or flying, universities that report on this were in the minority of the 66 organizations reviewed, and those that outline robust strategies to reduce emissions were even less common. Broad agreement from institutions, regulators and funding bodies on the level and pace of sector-wide emissions reduction expected would aid acceleration of ambition in this area. Further, determining the appropriate contribution of different universities would help identify where action is most urgently required. Part of this process will be to ensure a transparent, if not consistent, definition of business travel. Given the importance of long-distance business travel to emissions, our recommendation would be to include all travel undertaken for university business within this definition, and not to limit targets to short-distance and intercampus travel as is currently common. Data gathered to support emissions reduction should have sufficient granularity to monitor absolute reductions in travel, modal shift and understand who is travelling and for what purpose. Flight data is increasingly simple to collect and this granularity of data would support inclusive low-carbon practice. We recommend that universities use absolute targets for emissions reduction associated with long-distance travel as they are unambiguous and do not allow for increases as universities grow in size, income or change in their internationalization strategy.

With respect to food-related emissions, the findings here also demonstrate that universities are increasingly seeking to reduce the impacts of catering services within their control, despite a paucity of baseline data and monitoring frameworks. There are many different social and environmental impacts being addressed, however few universities were found to be pursuing actions aligned with the scale of emissions reduction inferred by the climate emergency framing. There is a need for more widespread institutional target setting and, given the

diversity of catering at different institutions, it is important that these targets are bespoke. Data on food is laborious to collect, challenging to make consistent and contains uncertainties about specific supply chains. Our recommendation is that future guidance on target-setting and monitoring for the HE sector should focus on supporting actions known to result in significant emissions reductions to avoid over-burdening sustainability teams with data collection (i.e. reducing meat and dairy consumption and increasing a shift from high-carbon to low-carbon meats). Where targets are set, they should focus on achieving an absolute reduction in the volume of meat provided through catering services.

Only through action do plans for carbon management become effective and the challenges that universities face in implementing comprehensive emission reduction strategies that include Scope 3 emissions highlight a need for employers to engage more deeply with the institutionalized and routinized dimensions of academic work. Therefore, in addition to well defined targets, and attentive monitoring, there is a need for activities that intervene in the systemic cultural and material conditions that support high-carbon academic practices and enable wider experimentation with, and stabilization of, low-carbon professional practices. These are undoubtedly complex aspects of workplace routine; however, such complexity should not prevent action to reduce emissions. There is a wealth of research on sustainable consumption and everyday practice that is undervalued when developing emission reduction strategies, and this should be drawn on to support effective action. Where experimentation and actions are taken to reduce emissions, which often are not university wide, these should be reported within university-level frameworks to allow experiences to be shared and extended. Related to this is the issue of accountability, and a need to establish mechanisms that ensure action plans are implemented and regularly reviewed.

Higher education's response to the COVID-19 pandemic has demonstrated that rapid and deep changes are possible, not least through the extensive use of virtual modes for academic work and by challenging university business models that depend upon high levels of internationalization. Universities can contribute to stabilizing and enhancing these new modes of academic work as the restrictions related to COVID-19 are lifted and should actively guard against an automatic return to unsustainable practices. Reorganization of campus activity also presents a significant opportunity to establish new, more sustainable, practices in relation to catering and other areas of consumption.

## Notes

1. This paper distinguishes short- and long-distance business travel, the latter referring to travel beyond the host city.
2. The Russell Group are 24 universities often considered to be the most prestigious universities in the UK. They are typically older, research intensive institutions, receiving approximately 75% of all UK university research grants and contract income.
3. Post-1992 universities are typically former polytechnic (in England and Wales) or central (in Scotland) institutions that were given university status through the Further and Higher Education Act 1992.
4. The People and Planet League is a comprehensive list UK universities ranked by environmental and ethical performance compiled annually by People and Planet, a student-led campaign network. Publicly available reports and information provided to agencies such as HESA are used to rank universities, awarding 1st to high achievers, followed by 2.1, 2.2, 3rd, failed in a grading system that mirrors degree classifications. Can be viewed at <https://peopleandplanet.org/university-league>.
5. Research funders are beginning to encourage low-carbon travel, for example, in 2020 Wellcome established grant conditions designed to minimise journeys, increase modal shift and offset unavoidable flights. Additional funding for low-carbon travel is also provided. <https://wellcome.ac.uk/funding/carbon-offset-policy-travel>.
6. Goldsmith's University also receive media attention for their ban on beef, however were not found to have a publicly available food policy.

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