

Environmental and Social Sustainability Framework

2024-2029

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1. INTRODUCTION

1.1 Purpose and scope

This framework sets out the context, governance structure, guiding principles and overarching commitments, to support and enable sustainable practice to be implemented, monitored and reviewed across all areas of Keele University’s operations, activities and development, during the period 2024-2029.

It outlines 17 environmental and social sustainability themes, cutting across all University faculties and directorates, for which strategies, policies, codes of practice or other guidance documents will be created or updated over the next 6 months. This approach is intended to create and/or facilitate the mechanisms and processes required for decision-making, information sharing, taking action, assessing, reporting and reviewing progress, to fully embed sustainability in all areas of the institution with collective responsibility and shared ambition. This will be a key enabler to support the University to track and meet institutional targets and KPIs, and to build upon its significant reputation as a leader in sustainability.

1.2 Background and Overview

Keele University is the UK's largest integrated campus university, occupying a 617-acre estate with over 12,500 students. The campus community includes circa 3,000 students living in Halls of Residence as well as over 180 staff residential properties, two 19th century Grade II listed buildings, extensive woodland and lakes and a large Science and Innovation Park within the Keele Growth Corridor University Enterprise Zone. The University plays a major role in the regional economy, contributing over £0.5bn and supporting the direct and indirect employment of over 7,000 people.

Keele University was founded 75 years ago to prepare students for an uncertain, post-war world and to support wider society through research in partnership with others. Keele University has a core mission to provide world-leading research and education, and is built upon beliefs in;

- the transformative capacity of a university education for individuals, communities and society;
- the importance of advancing knowledge through independent, high-quality research and academic enquiry;
- the critical role of education and research in transcending national and social boundaries;
- leadership in environmental sustainability as a critical behaviour to secure a sustainable future;
- valuing and celebrating the rights, responsibilities, dignity, health and wellbeing of individuals through a living commitment to equality, diversity and inclusion.

[Purpose - Keele University](#)

Keele University has carried out world-leading research in environmental sustainability themes, such as Clean Technology, for several decades. Indeed, being a beacon for environmental sustainability has been part of Keele's identity and sense of purpose for over 15 years, evidenced by myriad activity, research and projects with significant positive outcomes for the University and beyond ([Our sustainability journey - Keele University](#)). In 2015, Keele University committed to promoting "sustainability in all that we do" as one of six strategic aims, and action taken upon this commitment led to the prestigious award of "Global Sustainability Institution of the Year" by the International Green Gown Awards in 2021, in recognition of Keele's strong institutional-level commitment to sustainability across campus operations, education, research, staff and student community and wider external engagement. In 2024, Keele was one of fifteen initial signatories of the Concordat for the Environmental Sustainability of Research and Innovation Practice, representing a shared ambition to continue delivering leading research but in a more environmentally responsible way.

At the core of Keele University’s mission is the vision for a more sustainable world, by adopting the [United Nations Sustainable Development Goals](#) (UN SDGs) (Figure 1)- a ‘universal call to action’ announced in 2015 with the aim of “ending poverty, protecting the planet and ensuring that peace and prosperity is enjoyed by all by 2030” (United Nations, 2015). In 2014, Keele University implemented an Education for Sustainable Development Strategy, and an Institute for Sustainable Futures was launched in October 2018 to drive interdisciplinary research with six challenge themes addressing all 17 SDG goals. Keele University has shown commitment to contributing towards the SDGs through research, teaching and campus operations, which has been recognised by consistently high rankings in the [Times Higher Education Impact rankings](#).



Figure 1 United Nations Sustainable Development Goals (Source: [SDGs \(un.org\)](#))

The interconnections of the 17 goals have been represented in various diagrammatic forms, but perhaps most usefully by the ‘SDGs wedding cake’ (Figure 2), which depicts the three dimensions of sustainable development- social, economic and environmental (often simply represented as a Venn Diagram of equal overlapping circles) as tiers, with economy embedded within society, embedded within the biosphere. The foundational biosphere system includes the environmental SDGs of climate action, life on land and in water, and clean water and sanitation; the integrity of which are fundamental to supporting a healthy society, which in turn is critical for a functioning economic system.

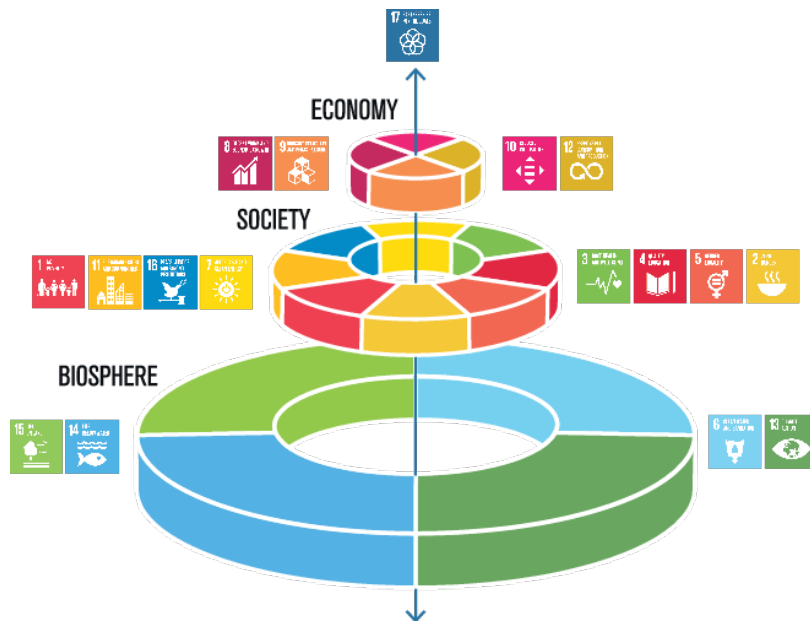


Figure 2. SDGs 'Wedding cake' (Source: [Stockholm Resilience Centre](#))

It is known that the ecological stability of Earth's Holocene epoch (believed to have begun approximately 11,700 years ago) is being severely threatened by human impact.¹ The [planetary boundaries concept](#) (Figure 3) is a framework, first proposed in 2009, to describe limits of nine critical processes that regulate the stability and resilience of the Earth system, beyond which it would leave the Holocene-like state which allows humanity to develop and thrive. The boundaries are interrelated processes within the complex biophysical Earth system, and together mark a critical threshold for the foundations of sustainable development.

¹ to the extent that many experts argue that we have entered an unofficially termed Anthropocene epoch- the most recent period in Earth's history beginning after the Industrial Revolution, when human impact started to have a significant impact on the planet's climate and ecosystems.

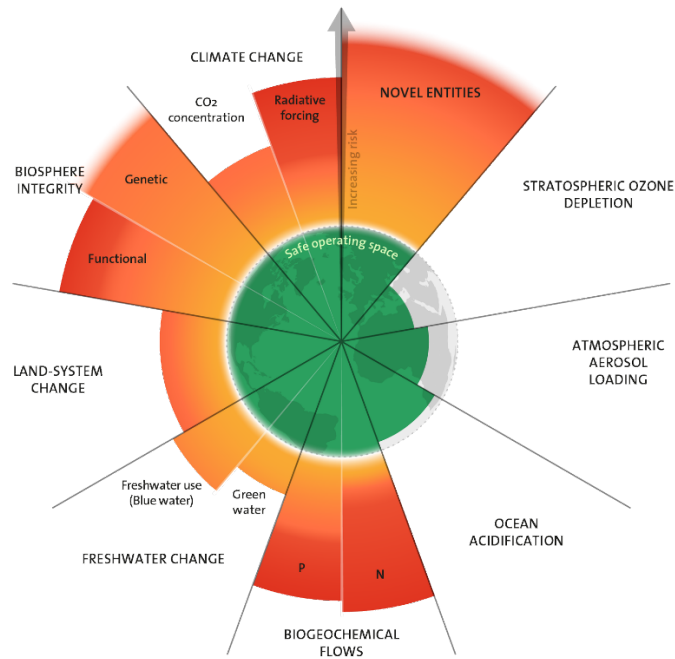


Figure 3. Planetary boundaries framework, first developed in 2009, shown here as updated in 2023 (Source: [Planetary boundaries - Stockholm Resilience Centre](#))

This concept of a ‘safe operating space’ for Earth’s stability and resilience, providing the foundation of socioeconomic sustainability, was further developed in a [‘doughnut economic’](#) visual framework for sustainable development, as a ‘safe and just space for humanity’ between an ecological ceiling and social foundation (Figure 4). The ‘doughnut’ brings the complementary concepts of the UN SDGs and planetary boundaries together, providing a useful framework for holistic sustainability and sustainable development.

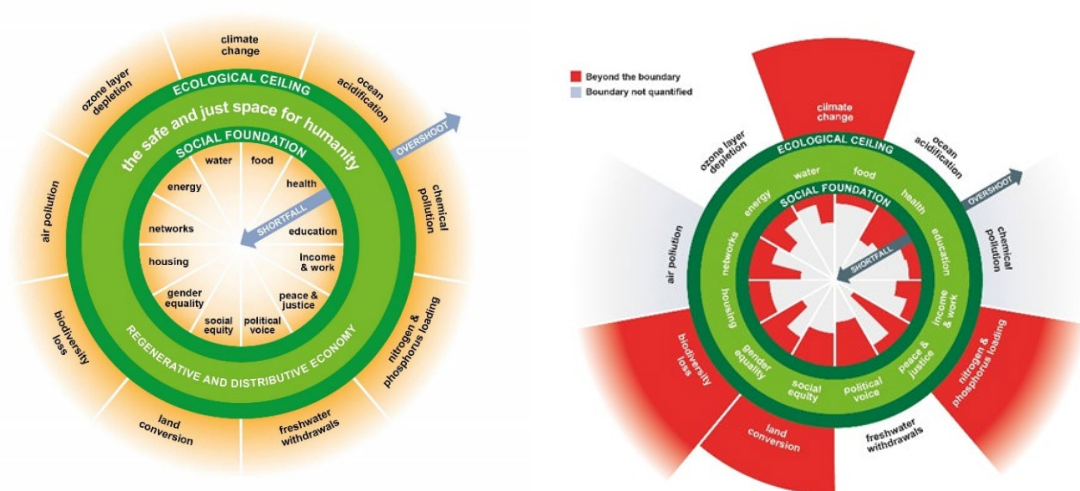


Figure 4a. The Doughnut of social and planetary boundaries, and b. with representation of overshoots and shortfalls

Two of the planetary boundaries- climate change and biosphere integrity- are recognized as ‘core’ boundaries based on their fundamental importance for regulation of the Earth system (Steffen et al., 2015), and the strength of evidence of the anthropogenic effect of increasing temperature of the Earth’s surface, and likely implications, highlights the urgency and scale of required climate action. In recognition of the this, in May 2019 Keele University Council was amongst the first Higher Education Institutions to declare a climate emergency and committed to a stretching target of reaching carbon neutrality by the year 2030. Demonstrating sincerity of this pledge, in 2021, the University realized its ambition of creating an expansive on-site Low Carbon Energy Generation Park (LCEG), comprising two wind turbines and 12,500 solar panels, collectively generating over 6 GWh of electricity from renewable resources annually. In combination with a 1 MW battery and Europe’s largest Smart Energy Network Demonstrator (SEND) to increase agility of matching on-site energy supply and demand, as well as investment in initiatives to reduce overall campus energy demand, this has resulted in a greater than 25 % decrease in carbon emissions associated with electricity consumption since commencement of operation. Reflecting Keele University’s understanding of the multi-faceted nature of sustainable development, and commitment to using the campus as a living laboratory, the LCEG and SEND have been used as a springboard for extensive research, education and community engagement and supported almost 300 SMEs, thereby demonstrating far-reaching impact beyond their intrinsic technological value. The University runs two Climate Change Skills Bootcamps, awarded Outstanding by Ofsted, to enable external organisations to enhance their knowledge and preparation for net-zero and smart energy transition. To date², 140 individuals from over 100 organisations have completed these bootcamps.

While proud of such notable achievements and their significant ripple effects, Keele University is all too aware of the scale and speed of continued action that is required, and the evolving knowledge and implications of scientific evidence. In September 2023, all nine processes of the planetary boundaries were quantified for the first time (Richardson *et al.*, 2023), with the conclusion that six have been transgressed. In the same year, the UN published a [special edition of their annual SDG Progress Report](#) ‘halfway to the deadline for the 2030 Agenda’, in which they lamented the triple crises of climate change, biodiversity loss and pollution, and the social inequalities compounded by the COVID-19 pandemic, financial markets and political events. It is increasingly becoming certain and evident that following business-as-usual practices, and operating within existing economic models and structures, will have irreversible, catastrophic consequences for humankind and all other species supported by the Earth’s biosphere- causing major economic and societal disruption and

² As of July 2024

devastation. Evolving scientific evidence and modelling indicates that focus on human-induced climate change in isolation is insufficient for protection of the Earth System from irreversible destabilization (Richardson *et al.*, 2023). The role of biosphere integrity as the “second pillar of stability of our planet” is becoming clearer, and the requirement for “mitigating global warming and saving a functional biosphere for the future to go hand in hand.” (Lucht, 2023). Keele University is committed to ensuring that its actions, operations and strategies are aligned with, and promote progress along, a pathway to true sustainability and sustainable development, as defined by the Doughnut Economic model.

2. FRAMEWORK

2.1 Context, Guiding Principles and Commitments

Keele University is committed to following, and contributing to, scientific evidence to understand how individual, organizational, national, and global action should be taken to combat destabilising anthropogenic effects on Earth systems and enhance progression of the 17 SDGs. Based on current understanding, and notwithstanding current macro-environmental and sector challenges, our overarching institutional-level commitment is to plan, act and review in accordance with legislation and guidance for best-practice³ in regard to;

1. Limiting increase in Earth's average surface temperature, by 2100 compared with pre-industrial levels, to 1.5 °C, necessitating net zero carbon dioxide emissions globally by the early 2050s.
2. Halting and reversing biodiversity loss on land and in the ocean.
3. Meeting targets within the 17 UN SDGs.
4. Contributing to increased understanding of Earth System science and the systemic and technical solutions that are required to protect, recover and rebuild resilience, to enhance prosperity and equity for all within a 'safe and just space for humanity'.
5. Being accurate, transparent, accountable, collaborative, and proactive in sharing knowledge and building effective partnerships.

These guiding principles and associated pledges will be monitored and refined in line with emerging evidence, guidance, and legislation. Action upon these principles will be delivered through a structure of University guidance and protocols, with ownership and responsibility at individual directorate/department level, and overseen by a Project Executive Group, reporting to the University Executive Committee and Council as outlined below.

2.2 Structure, Implementation and Governance

Keele University's commitments aligned to the above global agenda, will be demonstrated by and delivered through a suite of University strategies, codes of practice, policies, procedures and guidance, as outlined in Table 1. Implementation and progress against measurable objectives/targets associated with each sustainability theme will be monitored and reported at the Net Zero Project Executive Group- chaired by Dr Mark Bacon, Chief Operating Officer. Progress against KPIs, targets and implications for the University's decision making will be reported on a six-

³ Aligned to Higher Education specific guidance where applicable

monthly basis to University Executive Committee, Senate and Council. An annual report covering activity and progress in all themes will be made publicly available on the University's website.

Table 1. Themes covered in suite of supporting documents to integrate sustainability across University operations and activities

Theme		Owning Department/ Directorate(s)
Environmental & Social Sustainability		<i>Vice Chancellor's Office (VCO), Institute for Sustainable Futures (ISF)</i>
1.	Carbon accounting, reporting and management	<i>VCO, Estates & Campus Services (ECS)</i>
2.	Grounds maintenance, biodiversity & nature recovery	<i>ECS</i>
1.	Climate Risk & Resilience	<i>ECS, Legal, Governance & Compliance</i>
2.	Development of the Built Environment (Buildings and Infrastructure)	<i>ECS, Directorate of Research, Innovation and Engagement (RIE)</i>
3.	Energy Procurement	<i>VCO, ECS, Directorate of Finance</i>
4.	Energy monitoring and management	<i>ECS</i>
5.	Waste monitoring and management	<i>ECS</i>
6.	Travel & Transport	<i>ECS</i>
7.	Business travel	<i>Directorate of Finance</i>
8.	Food, catering and events	<i>ECS</i>
9.	Responsible Consumption & Procurement	<i>Directorate of Finance</i>
10.	ICT infrastructure & service provision	<i>Information & Digital Services (IDS)</i>
11.	Education for Sustainable Development	<i>ISF, VCO</i>
12.	Sustainability within Research	<i>RIE, VCO</i>
13.	Ethical Investment & Banking	<i>Directorate of Finance</i>
14.	Internal/ external Engagement	<i>ISF, RIE, VCO, Strategic Communications and Branding</i>
15.	Student and Staff Health, Wellbeing, Equality, Diversity & Inclusion	<i>Directorate of Human Resources, Legal, Governance & Compliance, Directorate of Student Support & Success</i>

Documents should follow guidance within the University Policy Framework, following appropriate consultation and approval processes, and stored in Policy Zone. They should reference and sit appropriately alongside related policies and strategies. Recommended minimum review periods will be adhered to, with more timely updates if circumstances indicate this to be pertinent.

2.3 Strategic Objectives

Plans and progress in the sustainability themes listed in Table 1 will be informed, actioned, and reviewed based on strategic objectives in the following cross-cutting areas: education, research & engagement; campus & operations; and leadership & governance, as outlined below⁴.

Education, Research & Engagement

- To have world-leading research in environmental and social sustainability supporting the transition to the net zero carbon economy and enable students, researchers and innovators to use the campus as a genuine 'living laboratory' for climate action research and innovation projects, as well as raising public awareness
- To consider and act upon the carbon and wider sustainability impacts of how we do our research.
- To ensure that all our students from Foundation year to Postgraduate Research students have environmental and social sustainability embedded into their programmes of study, and to work with the Students' Union to identify co- and hidden curriculum opportunities, empowering them as future leaders in sustainability
- To deliver pedagogically innovative teaching practices to reduce carbon emissions.
- To create and adopt a strategy for international engagement and partnerships that supports a net zero carbon transition, ensuring our communications raise public understanding and engagement with the climate emergency and urgent need for action
- To engage with staff, students and the community to raise awareness of environmental and social sustainability, and all roles in contributing to the UN's SDGs, and to ensure our environmental actions are inclusive and contribute to the health and wellbeing of staff, students and wider society
- To engage with staff and students to increase carbon literacy and understanding of the impacts of energy generation and consumption and other actions on climate change, and to support behavioural and cultural changes to reduce carbon emissions

Campus & Operations

- To achieve near-term science-based targets for Scope 1, 2 and 3 emissions by 2030 in line with a 'Paris Agreement' net-zero pathway, ensuring that ALL decisions around the university estate and operations are made through the lens of this ambition, assessing and documenting the influence on the University's carbon emissions

⁴ These objectives were previously adopted by Keele University as 'Climate Action Framework Principles'.

- To ensure that supporting a net zero carbon society and economy is a key requirement in all University investments and funding decisions, including working with other stakeholders such as pension providers
- To ensure that sustainability is embedded within the purchasing decisions and procurement systems of the University
- To manage and make decisions on the natural resources of our estate to protect and enhance biodiversity, maximise the drawdown of atmospheric carbon dioxide and enable its long-term storage within our soils and vegetation, and consider the carbon implications of any disturbance to soils and vegetation

Leadership & Governance

- To ensure there is clear leadership and governance for prioritisation, implementation, monitoring and review of sustainability-related policies and practices, to embed environmental and social sustainability considerations into decision making processes and university operations and activities, and ensure it is a key area of responsibility for all managers and leaders of Schools and Directorates
- To define and enable processes for sharing of information, consultation and review, and facilitate discussion and debate, to ensure that all students and staff have an effective voice to inform, enable and improve sustainable practice of the University.

3. REFERENCES

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4. DOCUMENT CONTROL INFORMATION

Document Name	Environmental and Social Sustainability Framework
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Date for Next Review	23 July 2027
Related University Policy Documents	[List all applicable]
<i>For Office Use – Keywords</i>	