



Medical  
Research  
Council

# MRC Environmental Sustainability Programme **Impact Report (2023–24)**





## Foreword

**The last 12 months have concluded pivotal preparations for the Medical Research Council for the transformation to an environmentally responsible research and funding organisation. A detailed, fully costed plan for the transformation of our research facilities has been established, which does not only look towards net zero by 2040, but operating a research estate, which is adapted or adaptable to climate change, resilient and conducive to cutting edge medical research, and a positive environment for our staff.**

As this report will show, MRC is looking at environmental sustainability with a wider lens. This includes culture change, knowledge sharing, and mutual support within and outside of the organisation, in order to tackle the existential issues related to saving the environment and reducing our contribution to its detriment. These considerations must, and will, continue to form part of this work.

This impact report shows that a great start has been made, which is a great motivation for the work that lays ahead!

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# 1. Executive Summary

**The UKRI Medical Research Council (MRC) is committed to the goals of the UKRI Environmental Sustainability Strategy<sup>1</sup>, and since April 2024, the responsibilities under the Concordat for Environmentally Sustainable Research & Innovation Practice<sup>2</sup>. It has established a comprehensive programme to deliver a range of activities, which follow the principle of embedding consideration of the environment in everything that we do.**

This report is the first of its kind in which we are presenting the impact of our activities within and outside of the organisation. We will present the changes affected by this work and highlight areas where progress has encountered hurdles and challenges, and what we intend to do to address these.

In the last financial year 23-24, MRC has fully reviewed and analysed the feasibility study on the transformation of the estate and produced a clear, detailed, and fully costed plan, for the transition to net zero for the MRC's owned research facilities. This includes not only the appropriate maintenance of our buildings, but also ensures their adaptation to future climate projections, increased biodiversity, and creating a better place to work for our staff. Funding from both MRC and UKRI Decarbonisation Funds have enabled a start on the implementation of these plans across the estates.

Research projects, which were funded by MRC, support our community with practical, effective solutions to implement environmentally sustainable research practice. These have been largely completed in the year 23-24, with the outputs being presented at a conference in the 24-25 reporting year.

The MRC programme undertook a landscape review of the sector to better understand the challenges and opportunities associated with transitioning to environmentally sustainable life science research. The review highlighted challenges, as well as potential remedies, which will be adopted by the programme in the coming year.

We have continued to work to improve our data on emissions, water consumption, waste, and other environmental metrics. Understanding this data better allows more effective interventions and has led to the development of projects and initiatives to reduce environmental impact.

We have bolstered the number of dedicated roles working on environmental sustainability within our owned research facilities, with positive impacts being seen in terms of the scope and scale of the impacts being achieved.

MRC environmental sustainability seminars, focussing on a wide range of subject matters have become a staple element in diaries, and have consistently attracted very good attendance from across the life science research sector.



<sup>1</sup> [UKRI Environmental Sustainability Strategy](#)

<sup>2</sup> [Concordat for the Environmental Sustainability of Research and Innovation Practice \(wellcome.org\)](#)

## 2. Introduction

### 2.1 Purpose of the Report

This report provides an overview of the activities undertaken in 23-24 by the MRC environmental sustainability programme and highlights the impact that these activities have had.

It is intended to provide the context and aims of the programme, and progress towards these aims, by presenting data, narrative, and selected case studies. The report presents the good work happening within the owned research facilities which is contributing to the overall aims of the programme.

The impact report transparently highlights areas of strengths and weaknesses of the programme, as well as detailing future activities intended to improve areas where challenges remain.

### 2.2 Scope of the Report

This report covers the period of financial year 2023-24 (1st April 2023 – 31st March 2024) and the activities and impacts, which are specific to the MRC environmental sustainability programme. An exception to this has been made for the reporting on scope 3, supply chain, and those we fund, as this measurement is not undertaken every year.

At times, the report mentions activities and initiatives which have fallen either side of financial year 23-24, where it is important to the overall position of the programme, or adds to the readability of the narrative of events which have fallen within the reported year.

## 3. Background

### 3.1 Medical Research Council

The heart of MRC's mission is to improve human health through world-class medical research. To achieve this, MRC supports research across the biomedical spectrum, from fundamental lab-based science to clinical trials, and in all major disease areas. MRC works closely with the NHS and the UK health departments to deliver our mission and give a high priority to research that is likely to make a real difference to clinical practice and the health of the population.

#### MRC's mission is to:

- encourage and support research to improve human health
- produce skilled researchers
- advance and disseminate knowledge and technology to improve the quality of life and economic competitiveness of the UK
- promote dialogue with the public about medical research.

With the improvement of the human health at the centre of MRC's work, it is important to the organisation, that MRC's activities should not damage the environment, which is so critical for human survival and wellbeing. The MRC environmental sustainability programme therefore forms a crucial part of the thinking and actions in delivering MRC's overall ambitions.

### 3.2 MRC Environmental Sustainability Programme

MRC launched its environmental sustainability programme in 2020 as a response to the UKRI Environmental Sustainability Strategy 2020-2025. In recognition that the reduction of our impact on the environment is a much larger task than transforming the estate, a number of workstreams have been identified:

The programme is managed by the Environmental Sustainability Programme Director, reporting to the MRC Chief Environmental Sustainability Officer and Senior Responsible Owner. It reports to the Executive Board of the MRC and aligns with the UKRI environmental sustainability programme.

<b>WORKSTREAM 1</b> Estates	<b>WORKSTREAM 2</b> Operations	<b>WORKSTREAM 3</b> Supply Chain
Feasibility Design Construction	Replacement Waste management Change of methods	Assessment Engagement Collaboration
<b>WORKSTREAM 4</b> Horizon Scanning	<b>WORKSTREAM 5</b> Research & Dissemination	<b>WORKSTREAM 6</b> Engagement
Challenges Innovations Solutions	Research Application Dissemination	Communication Exchange Training

## 4. Scope of the Review

### 4.1 Environmental Impacts FY 2023-24

MRC reports data quarterly on a number of environmental metrics to ascertain its progress against its own targets, those of UKRI, and of the Greening Government Commitment (GGC)<sup>3</sup>. In all cases, the baseline financial year against which data is assessed is 17-18. All measures of impacts show significant effects of the Covid pandemic in 19-20 and 20-21 in particular.

Scope 1 and 2 emissions are reported for the MRC’s controlled estate: the Laboratory of Molecular Biology (LMB), the Laboratory of Medical Sciences (LMS), and the Mary Lyon Centre at MRC Harwell (MLC). Scope 3 travel emissions are reported for all staff business travel within MRC.

### 4.2 Emissions by Scope

Figure 1 shows the total reported emissions for MRC. The GGC obligates MRC to report only scope 1 and 2 emissions, and those scope 3 emissions arising from business travel.

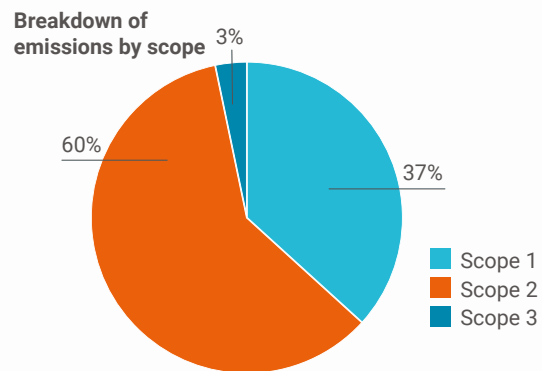
Figure 2 shows MRC’s reported emissions over time since the baseline year 17-18. Emissions show a steady decrease, with a 52.2% reduction over that period.

In addition to the overall UKRI target of net zero carbon by 2040, MRC has set an additional interim target to half its scope 1 and 2 emissions by 2030. The data in Figure 3 shows that this target has been achieved as of 23-24, the first time that the emissions have been reduced to this level.

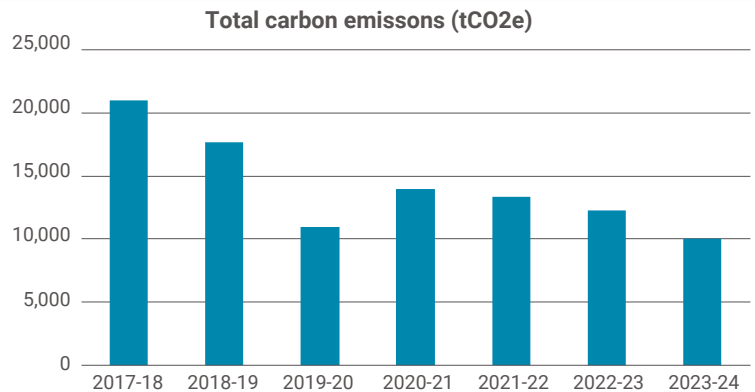
This has been achieved in large part, from the digression in carbon intensity within the UK electricity grid, which is scheduled to achieve net zero in 2035. The energy consumption, shown in section 4.2, has not fallen proportionately, and will be addressed in future projects, including those highlighted in section 5.1.

The focus within the estate is to eliminate scope 1 emissions, by moving heating processes away from natural gas and to an electricity-fuelled alternative.

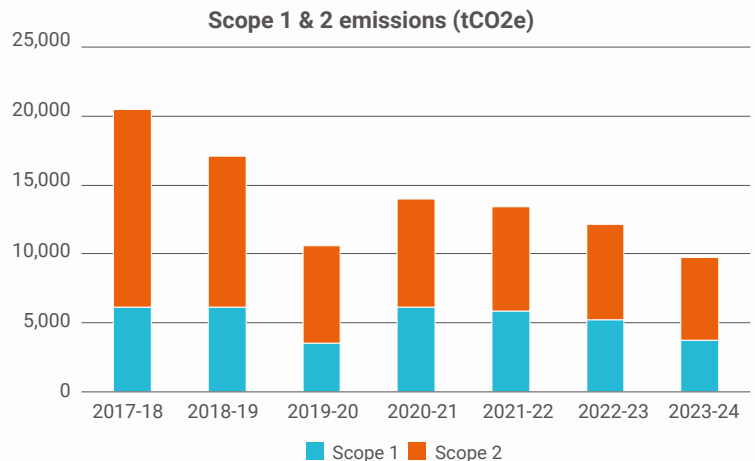
**Figure 1 – reported emissions by scope**



**Figure 2 – aggregate scope 1, 2 & 3 (business travel) emissions by year**



**Figure 3 – aggregate scope 1 & 2 emissions by year**



3 Greening government commitments: reporting requirements for 2021 to 2025 – GOV.UK ([www.gov.uk](http://www.gov.uk))

### 4.3 Energy Usage

As illustrated in Figure 4, electricity and gas use at MRC has shown a decrease in consumption of 27.3% against the baseline year. There are projects planned for financial year 24-25 which will bring this consumption down further.

Projects are currently in feasibility and design which will achieve a further 5% reduction against the 23-24 benchmark in their first full year of operation, 25-26.

### 4.4 Water Usage

MRC, and life science research in general, is water intensive. A number of MRC's operated facilities have a requirement for tightly controlled internal environmental conditions, including humidification and the provision of water from reverse osmosis.

Water consumption has shown a general trend in reduction since the baseline year (Figure 5), with a 23.3% overall reduction between 17-18 and 23-24. This exceeds the UKRI target set out within GGC for an 8% reduction over that period.

Further water reductions, without significant changes to the services required for environmental conditioning and sterilisation within the MRC's animal facilities will be challenging to achieve. Although some 'easy wins' have already been identified, these amount to around only 2% of overall consumption.

### 4.5 Waste

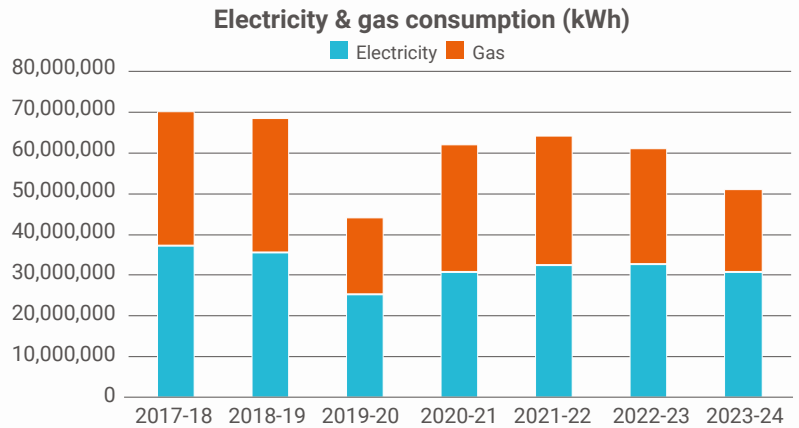
As Figure 6 illustrates, water has shown a general trend downwards since the baseline year. This has led to an overall reduction by 41.3% in 23-24.

The major factor in this decline has been the reduction in landfill waste which has all but been eliminated as a method of disposal, except for in some very specific scenarios, with this waste typically being disposed of in high temperature incineration (without heat recovery). This can be seen in Figure 7.

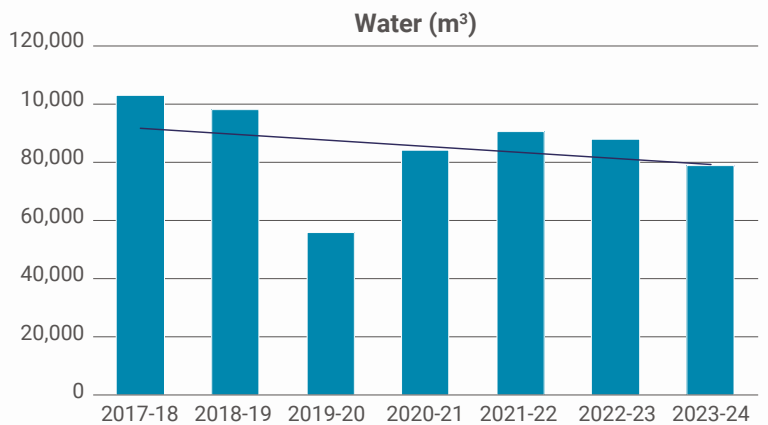
Work is ongoing to direct a greater proportion of waste, from high temperature incineration, to a method of incineration with heat recovery.

The GGC contains targets to reduce disposal to landfill to less than 5% of total waste; and increase recycling to more than 70% of waste disposal.

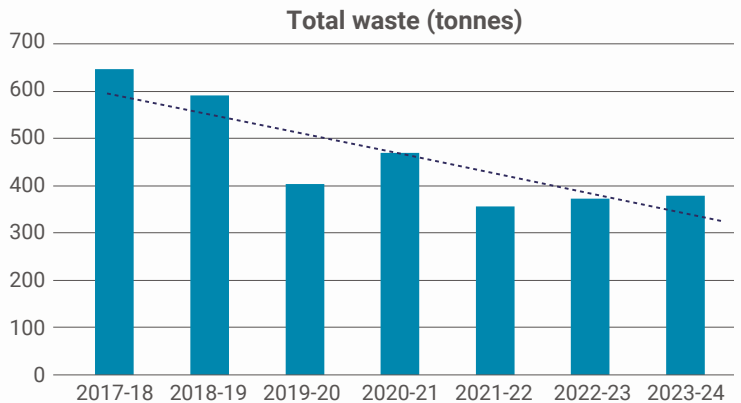
**Figure 4 – aggregate energy consumption by year**



**Figure 5 – aggregate water consumption by year**



**Figure 6 – aggregate waste tonnage by year**



**Figure 7 – waste by disposal method**

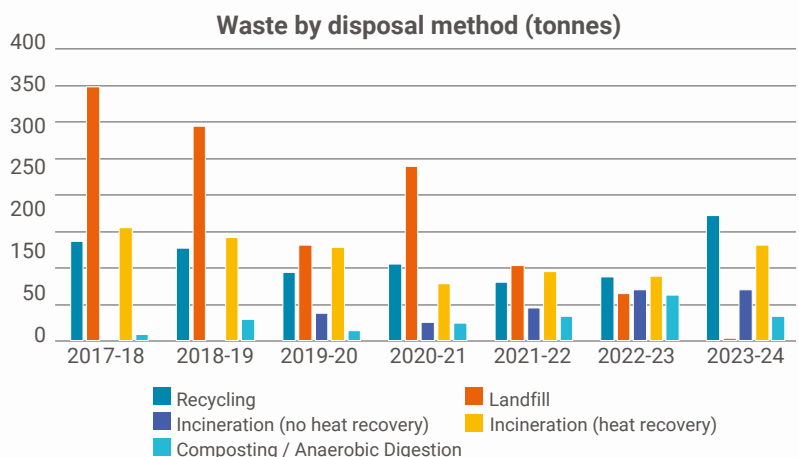




Figure 8 shows the progress which has been made against these targets since the baseline year. It shows that although the landfill target will be achieved, it is unlikely that the 70% target will be achieved for recycling, because of the nature of the waste produced within MRC facilities, which is often required to be incinerated.

However, the GGC targets are a UKRI-wide measure and the underperformance in one council can be offset in another, with less specialist facilities, such as dry labs or office spaces.

### 4.6 Business Travel

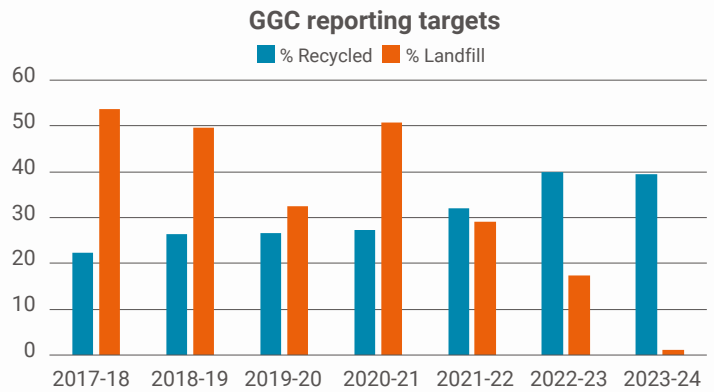
As well as scope 1 and 2 emissions, scope 3 business travel emissions are the other carbon metric reported under the GGC requirements. This too has seen a trend downwards (Figure 9), with 23-24 showing a 43.4% reduction against the baseline year. The covid pandemic brought travel close to a complete halt during 20-21, with travel slowly rebounding as lockdowns eased. However, it does appear that new ways of working under the pandemic, particularly the move to virtual meetings, have created a lasting reduction.

The financial year 23-24 was the first full year of operating under the UKRI’s guidance on how and when to travel, which introduces a number of recommendations to reduce the environmental impact of travel. One of the key considerations is whether to travel at all. The GGC sets a target to reduce domestic flights by 30% against baseline, which has already been achieved by MRC (Figure 10). Focus is now being given to eliminate domestic flights altogether, with flights being taken domestically in only the most exceptional circumstances.

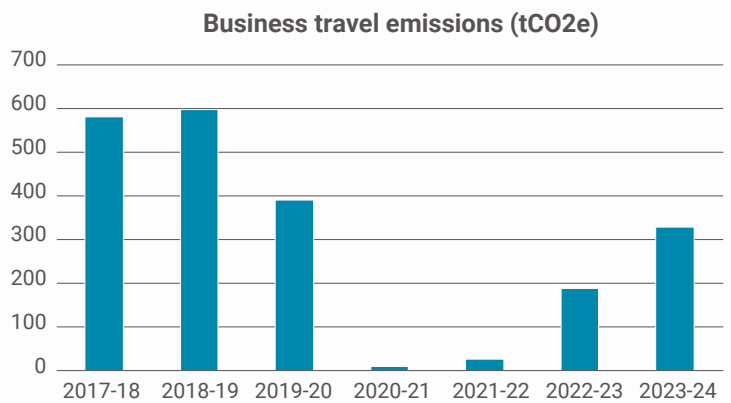
### 4.7 MRC Supply Chain

A UKRI assessment of the MRC supply chain emissions for the financial year 21-22 highlighted a total footprint of 27,666 tCO2e (Figure 11). This was contributed to by over 1,500 suppliers through a spend of £94.78m, representing 25% of the UKRI total emissions. Whilst this is not using data from 23-24, we anticipate this picture to remain similar, although the volume of construction is very likely significantly reduced (with the construction of LMS now complete). We have also discovered that the emission intensity (292 tCO2e/£m) of MRC is the second highest in UKRI, largely due to the high usage of industrial gasses and chemical products, relative to other councils.

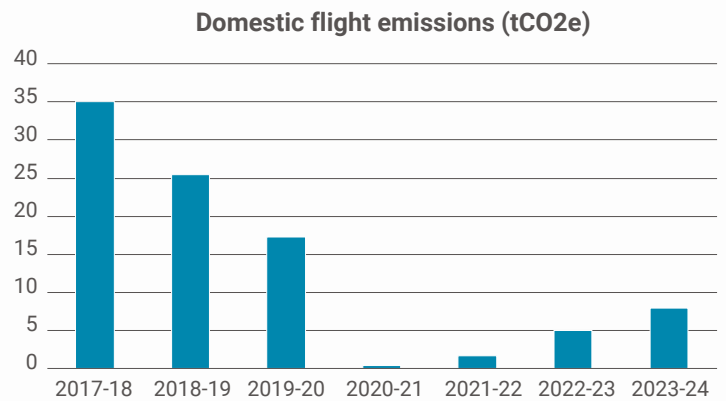
**Figure 8 – GGC reporting targets progress – recycled and landfill**



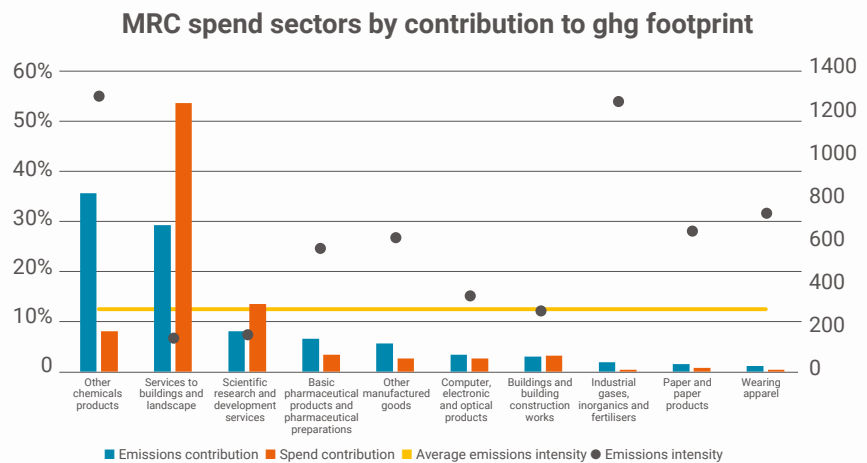
**Figure 9 – total emissions arising from business travel**



**Figure 10 – total emissions arising from domestic flights**



**Figure 11 – MRC spend sectors by contribution to GHG footprint**





## 4.8 MRC Scope 3 Emissions – who we fund

A full Scope 3 assessment is currently being concluded by UKRI. Early feedback is that whilst the MRC was able to provide a huge amount of data, the reliability on the carbon emissions from those we fund is very limited, and in many cases not available.

The assessment highlighted that the emissions through the MRC's funding activity is approximately between 9 and 10 times that of the MRC emissions arising from scopes 1 and 2 combined.

## 4.9 Biodiversity

As part of the net zero feasibility study, a review of biodiversity across the MRC estate was undertaken to identify opportunities and constraints. A preliminary ecological assessment of each site was undertaken, with a site survey, and a species list collated for each site.

MLC's estate has the largest amount of green space. Here, a nature recovery plan and biodiversity net gain baseline was commissioned in March 2023, with the output expected in the summer of 2024. The output of this work will be used to inform and develop a biodiversity plan for the whole of the MRC estate in 24-25.



# 5. Programme Workstreams

## 5.1 Estates Transformation

The net zero feasibility study was completed in 2023 which reviewed the existing MRC owned and operated research estate (LMB, LMS and MLC) and mapped an incremental pathway to achieving operational net zero by 2040. Achieving net zero will involve significant investment in the estate, which can largely be accommodated in an incremental way, at the point of replacement of existing plant and building fabric.

As well as measures designed to transition to net zero, other aspects of environmental sustainability are also considered within the feasibility. This includes climate adaptation, a condition survey, water efficiency, stormwater management, biodiversity audits, and sustainable travel.

A number of the projects highlighted within the feasibility were already planned, and funding has been received from UKRI to undertake projects to deliver solar PV, solar canopies, heat decarbonisation feasibility and design, and insulation and window upgrades. These projects are currently in design, with a number due for construction within the next twelve months.

Elsewhere, work is underway to review and optimise data and submetering across the estates. This improved data collection and diagnostics will support a range of projects going forward, identifying energy efficiency savings, and validating reductions in energy consumption where interventions are made.

## 5.2 Transformation of Operations

The often complex research that MRC undertakes requires innovative solutions to be introduced to lower the environmental impact of its operations. Life science research is notorious for the intensity of its water and energy use, and the volumes of waste it creates.

In order to compare the relative environmental improvements of the labs across our institutes, MRC has adopted the Laboratory Efficiency Assessment Framework (LEAF) across all of its labs, with an ambition to achieve Gold standard by the end of 2025. Steady progress has been made at all MRC facilities towards this target, with specific information contained within the individual updates from the institutes in section 6.

LEAF provides advice and guidance to support labs to reduce waste, energy, and water, but other initiatives have also been introduced. This has included the reduction of energy consumption by rationalising equipment and raising temperatures in ultra-low temperature freezers and PCR machines. Timers have been introduced to equipment which is required to be at temperature during operating hours, such as water baths.

### 5.3 Supply Chain

The supply chain associated with life science research is complex and contributes an environmental impact which is disproportionately large compared to most other sectors. Particular issues which are pertinent to MRC's own facilities are single use plastics, sustainable waste streams, and water consumption.

Much of the strategic work on improving the supply chain has been done under the UKRI programme over the past year. This has included the introduction of the UKRI Responsible Procurement Charter which sets out guidance for those undertaking procurement exercises to assess sustainability criteria as part of the process. MRC has embedded environmental sustainability scoring in a number of recent tenders for both construction and services contracts.

Colleagues in the UKRI environmental sustainability programme have also undertaken a project to review the research councils' spend with suppliers and their investments. The outputs of this work will be built on specifically for MRC by an internship project planned for the summer of 2024, where an intern will work with key suppliers to identify opportunities to lower the environmental impact of their products and services.

Within MRC's facilities, efforts are being made to reduce the consumption of single use plastics, within the labs, but also more general operations such as catering and office supplies in line with the GGC target to eliminate consumer single use plastics by 2025. Where plastics cannot be eliminated or reduced, efforts have focussed on shifting to bioplastics, or identifying recycling schemes for lab plastics, something which has historically been difficult to secure suppliers for.

Improving the range of waste products collected and recycled has improved this year, so that all MRC facilities now collect food waste for anaerobic digestion, reducing the emissions associated with this waste stream.

### 5.4 Horizon Scanning

It is essential that the environmental sustainability programme has a current understanding of the key issues affecting MRC and the wider life science research sector. This understanding gives confidence that resources can be focussed on the challenges and solutions which will give rise to the biggest positive impacts.

At the direction of the executive board, who asked us to demonstrate the key challenges and opportunities facing the environmental sustainability transition within the life science sector, we undertook a landscape review<sup>4</sup>, beginning in spring 2023. The review was undertaken initially through hosting and engaging in workshops and seminars, and a review of the literature related to the subject. Latterly, an online survey was undertaken which courted the views of over 200 people working within the sector.

The landscape review produced a number of findings of common challenges across the sector. The challenges relevant to MRC can be broken into three broad themes:

- **a need for standardisation**
- **culture and behaviour change**
- **waste and hazardous materials**

For each of the themes and the specific challenges identified within them, we made recommendations and suggestions to lessen the barriers they present, both within the MRC and to the wider sector. Further outputs are being worked on by colleagues at UKRI, with support from the MRC programme.

These recommendations have been adopted into the environmental sustainability programme for the coming year, with more details given in section 8 of this report, and in the landscape review itself.

4 MRC Landscape Review Transitioning to environmentally sustainable life science – challenges and opportunities ([ukri.org](https://ukri.org))

## 5.5 Research

In order to help to overcome environmental sustainability challenges within medical research, we fund research into environmentally sustainable practice within life science research and disseminate the outputs with the sector as a whole.

In 2022 we funded research into potential solutions to lessen the impact of waste, use of environmentally damaging materials, energy efficient tissue storage and other techniques to lessen usage of resources in a medical research context. These projects came to an end this year, with a conference held at the Francis Crick Institute in April 2024 to disseminate the outputs of the research through speakers, panel discussions, and a poster presentation. The timing of the research means that the conference will not be reported within this financial year, however the research projects are already producing outputs; with the proceedings of the conference to be published in 2024-25.

Some of the projects funded, include:

A review into the usage of **disposable surgical gowns** within operating theatres, of which 93 million are used across the NHS. The review used interviews and assessed the effectiveness of reusable alternatives, to create education and guidance to lower consumption of these single-use items.

Creating a framework for **eco-prescribing** to reduce the risk to contamination of water course and soils from excreted medicines and metabolites. This framework will allow prescribers to consider environmental impact alongside cost and clinical effectiveness for the first time.

Creating a sustainable roadmap for low-temperature **biobank storage**. The development of life cycle assessments for ultra-low temperature freezers and liquid nitrogen, which can be applied by researchers when making decisions about how to store and archive samples.

Published research will continue to be a key tool to transitioning life science research to greater environmentally sustainable research. One of the outputs of the landscape review was to indicate the requirement for further published information.

We are intending to work with partners from within the sector to fund and publish further research, with discussions having already begun.

## 5.6 Engagement

A key element of the environmental sustainability programme is to engage MRC and the wider life science research sector to communicate the aims of the programme, disseminate best practice, and coordinate efforts to overcome shared challenges.

We developed an engagement strategy in autumn 2023, in order to formalise the objectives of our engagement activities. The strategy identified two main pillars of engagement, those internal to MRC, and those undertaken primarily for the benefit of the wider sector. This strategy will guide the MRC to foster a culture of sustainability, drive positive change, and integrate environmental considerations throughout our operations and research activities. The strategy also highlights key ongoing activities.

Continuing from previous seminars within the MRC environmental seminar series, an event was held in Newcastle in November which focussed on supply chain sustainability. This event built on the two seminars organised in 22-23 and attracted 44 in-person guests and 50 online attendees in total, from a range of backgrounds and experiences, the largest attendance we've had to date. The next in the seminar series, focussed on culture change, will be held in July.

As well as the seminars that we hosted ourselves, we also influenced a number of others in terms of content, contributing as speakers and to agendas. An example of this was British Mass Spectrometry Community workshop in May 2023<sup>5</sup>, which focussed on environmental sustainability within the mass spectrometry sector for the first time.

The first steps towards the development of a training programme were made in March, with a training pilot held at MLC. This involved the development of a programme, which was delivered by a facilitator and trainer. This programme and development of training materials will continue into the future, with plans to deliver training at the other institutes and head office this year.

<sup>5</sup> [UK MS Sustainability\\_v8\\_25 OCT 23 0600 BST copy.pptx \(bmss.org.uk\)](#)



## 6. Updates from the Research Facilities

**MRC has three research facilities within its operational control, each of which has been making strides towards improving environmental sustainability. The green groups and committees at each facility know their research and operations intimately and have been instrumental at driving improvement and implementing initiatives such as LEAF.**

### 6.1 Laboratory of Molecular Biology

The LMB has a well-established lab sustainability team, as well as green reps in over two thirds of the institute's research groups and scientific departments, who help to encourage sustainable behaviour among their peers. The efforts of this work have been recognised through the site-wide achievement of Silver LEAF, with work underway to reach Gold standard before the end of 2024.

The focus of much of the past 12 months has been to improve the publicity and influence of the lab sustainability team, through hosting discussion forums, holding events, and other awareness-raising activities, in order to increase the uptake of environmental sustainability within researchers' day-to-day work. Improvements of laboratory equipment to reduce environmental impact have included the ongoing upgrade of liquid nitrogen storage, ultra-low temperature freezers and incubators to more energy efficient models, upgrade of mercury lamps in microscopes to LEDs, installation of auto-sash-closers in fume cupboards and conversion of fume hood and safety cabinet lamps to LEDs.

Initiatives have been introduced to significantly reduce waste produced in the labs and wider site operations by improving reuse, recycling, and switching to alternative materials. The Stores team has reduced waste from packaging by stocking alternatives to polystyrene-racked tubes, stocking pipette tip refills, and switching to products with less plastic waste. The Media team wash tubes and plates so that they can be re-used. Scientists are encouraged to switch to reusable products wherever possible, including serological pipettes, filtration units and glass bottles. Policies to improve re-use of unwanted equipment have been implemented, and new recycling streams and processes introduced, including plastic gloves, label printer cartridges and green waste.

Some of the biggest carbon reductions have come from relaxing some of the internal environmental conditions of the buildings and replacing air filters with more efficient products. Continuing to reduce ventilation rates, particularly during night time periods, reduces both the energy used in fans and also the need to condition the air displaced. Fume cupboards have continued been retrofitted with sash closers for the same reason.

Over 1,000 fluorescent light fittings have now been retrofitted with LED alternatives, with more to be installed in the coming year. When complete this project will reduce emissions by an estimated 43 tCO<sub>2</sub>e. The LED fittings are made using the reconditioned trays from the old fittings, so as to cut down significantly on the waste generated from the project. Lighting controls have also been reviewed to ensure that lighting is off during out of hour periods and automatically adjusts according to natural light levels. This is part of a regime of continuous commissioning of the plant across the site.

Over the next 12 months we're going to be taking forward a number of projects to reduce the LMB's emissions to achieve net zero by 2040. This includes projects to decarbonise heat and steam, improve submetering and data diagnostics, and the installation of solar PV.

### 6.2 Laboratory of Medical Sciences

Whilst the new building was designed to amplify the institute's core strength of bridging the exploration of biological mechanisms and those translating that work into clinical applications, much of the construction placed an onus on creating a building that put minimal impact on the environment where feasible. Sustainable features of the building are shown through optimisation of the glazing ratio to reduce heating and cooling loads, minimising water consumption with low flow fixtures and leak detection systems, utilising roof space for a green roof and PV panels, connects to a district heating system to name a few.

In addition to welcoming a new research facility LMS also proudly welcomed a fulltime designated Sustainability Officer. In the era of change at the LMS introducing our first sustainability role marks a positive move towards making a biomedical research vision that realises that healthy people need a healthy planet.

Since her appointment several strides have been made to making the institute more sustainable such as:

- Transition from clinical or orange waste to tiger striped offensive waste, ensuring none of our waste is sent to landfill instead an energy from waste recycling facility.
- Approval and launch of software to better track usage and monitor efficiencies of equipment.
- Funding of a laboratory sample management that will better manage space of the institute’s freezers. This prevents unnecessary spend and power consumption, reducing emissions.

LMS has implemented LEAF across the institute as a whole. They currently hold Silver accreditation, having made improvements in the last twelve months (listed above), they aim to achieve Gold in 2024.

To further promote environmental sustainability across the labs, LMS run an annual greening competition whereby all labs have the opportunity to compete against each other in an effort to have the title of the years ‘Greenest Lab’. Scores are given and weighted based on the labs research to activities such as, ensuring PCR machines are turned off overnight and programmed to incubate at 12°C not 4°C, make sure communal equipment is on timers, clean-up of unnecessary data duplicates or archiving to cold storage and so forth. The Greening Competition not only plays an important role in gaining engagement but is part of a wider initiative to showcase how energy intensive and wasteful lab work can be, and furthermore how small changes can have quite a significant impact.

To transition away from clinical waste bins, in an effort to tackle our labs single use plastic waste in 2022, we signed onto a scheme where all non-contaminated single use plastics or common packaging waste is recycled and repurposed into stormboards and various other farming materials. This has meant as of May 2024 500kgs of single use waste has been recycled and repurposed into useful materials.

### 6.3 Mary Lyon Centre at MRC Harwell

The year began with the recruitment of our graduate sustainability officer. This new and necessary role is tasked with coordinating environmental sustainability activities across the site. The role works closely with other teams to embed sustainable practice into our existing operations, as well as to build new initiatives.

The Green Group was established for the first time on the site, with training given to the new members to support them to make changes in their working practices. The group has already undertaken a small number of activities, including developing an environmental induction for new starters, seeding wildflower seeds to enrich the biodiversity of the site, and undertaking a site-wide litter pick. We hope to build upon this success in the coming year and plan to implement additional initiatives for the benefit of environmental sustainability.

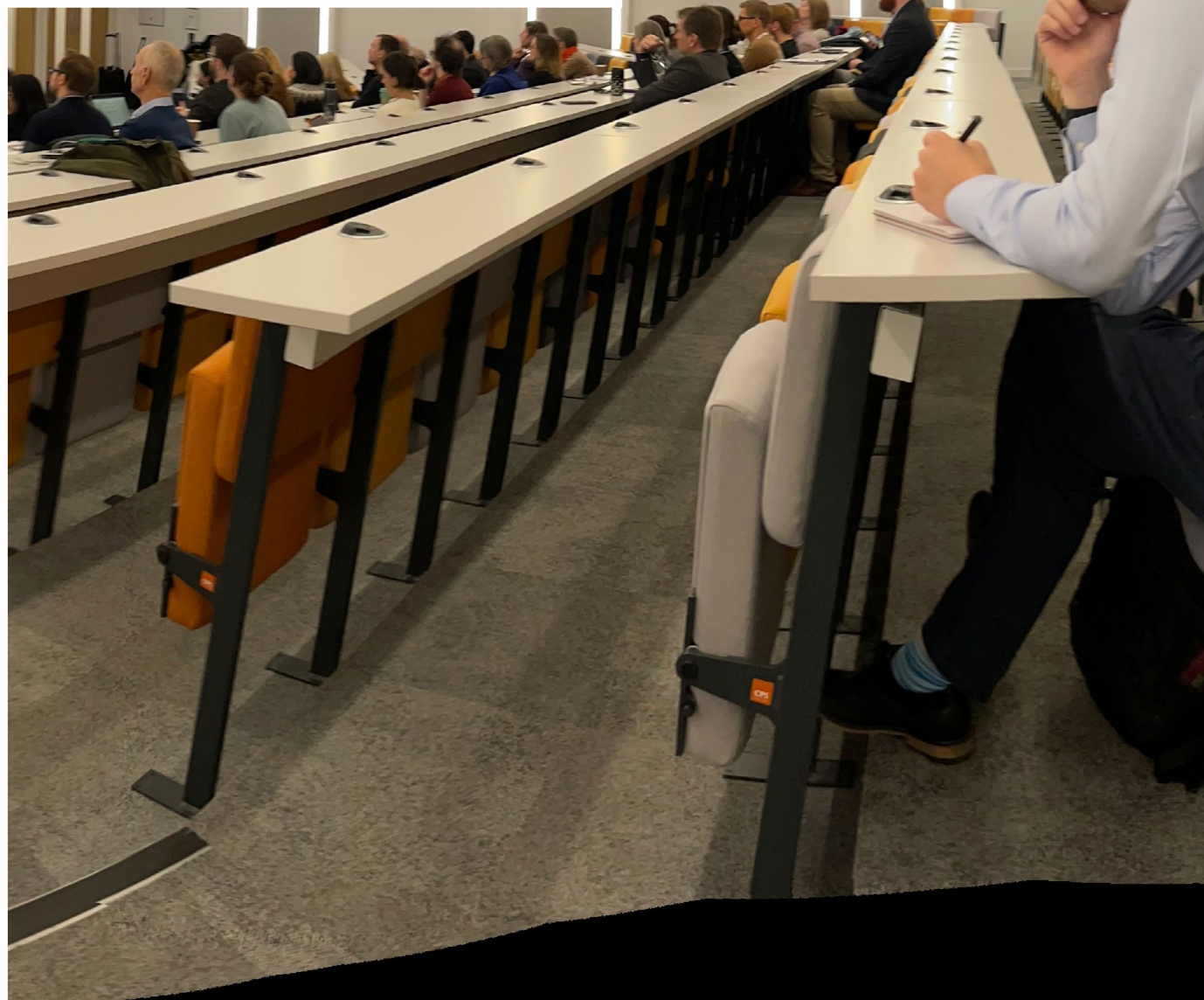
One area of focus this year has been on our water consumption. In the summer, to build on the work done in the net zero feasibility study, we undertook a detailed water audit, which provided potential savings of 1,776 m<sup>3</sup> of annual water savings. One of these initiatives has already been enacted on site by, reducing the volume of animal drinking bottles being processed, through refining our maintenance regime. This has resulted in a reduction of our water use by 4,800 litres per year. Further water reduction activities will continue to be enacted in the future.

Progress continues to be made in our labs, all of which are actively participating in the LEAF programme, with 6 of 9 lab groups having now achieved Gold LEAF accreditation; reducing carbon emissions by 194 kgCO<sub>2</sub>e/a. Our animal house is also currently working towards a tailored set of criteria. Smaller improvements in energy efficiency have also been made, such as automatic timers to reduce power consumption of water baths and other equipment, and the raising of the temperatures of our PCR machines and ultra-low temperature freezers, the combination of which has resulted in significant operational savings. Although individually small, in total these changes have reduced scope 2 emissions by 5.9 tCO<sub>2</sub>e per year.

371kg of electronic waste was avoided by donating the desktop phones to charity, instead of disposing of them via the usual waste stream. Food waste was also introduced to the site for the first time, diverting this waste stream to anaerobic digestions, and away from incineration.

MLC is lucky to have so much surrounding green space. This year, steps have been taken to improve the biodiversity of the site. The areas of grassland left unmowed have been increased, and wildflower seed sown to improve species richness. We have been working with ecologists to develop a site-wide management plan to improve biodiversity, which will include green group activities in the new year such as building bee, bat, and bird boxes, and relaxing some of the grounds maintenance practices. A wildlife pond will be built this year, which will introduce the first open-water habitat to the site, and which will increase biodiversity further as well as provide a space which aims to improve staff well-being.

Next year promises to be another significant year for environmental sustainability at the MLC, with big plans to improve the estate. These plans, currently in design, include installing solar panels, insulation, glazing, solar canopies, improving metering and designing heat pumps to replace our gas boilers at the end of their lives.





## Performance Metrics

### 7.1 Targets and Progress

The MRC environmental sustainability programme has a number of targets by which its success is judged. These targets are typically set against a 17-18 baseline, and at UKRI level in response to the requirements of GGC, with a number of exceptions.

The table below provides a concise list of requirements, and the progress made to date against them:

Target	Progress at 23–24
Net zero carbon emissions by 2040	<b>Target projected to be met.</b> Pathway to net zero established for the first time in 23-24.
Half scope 1 and 2 emissions by 2030	<b>Target met.</b> Scope 1 and 2 emissions at 47.6% of baseline emissions in 23–24.
Reduce domestic flights by 30%	<b>Target met.</b> However, MRC working to reduce domestic flights to zero. Increase seen in 23–24 versus previous year, which will be investigated and acted upon.
Reduce water consumption by 8%	<b>Target met.</b> Water reduction now at 23.8%, with plans to reduce further from projects in 24–25.
Reduce landfill waste to <5%	<b>Target met</b> and landfill percentage now at 1%. Very little can be done to eliminate final 1%. Attention focussed instead at reducing incineration without heat recovery.
Increase recycled waste to >70%	Recycled waste at 39.6% versus baseline. <b>Target likely to remain unmet</b> by 2025.
>25% of operated fleet to ULEV vehicles	<b>Target met.</b> Entire fleet now EV or hybrid.
Eliminate consumer single use plastics	Progress made, but some items still used within catering and office supplies.
Undertake biodiversity net recovery plans for all relevant sites	Biodiversity recovery plan underway at Harwell. Preliminary ecological assessments undertaken at all sites. Biodiversity strategy to be developed in summer 2024.
Develop climate adaptation strategy	Climate risk assessment undertaken for all buildings as part of net zero feasibility. Strategy to be developed in summer 2024.

For selected targets, further narrative and progress updates are given in section 8 within this report.

Although these targets are generally set for UKRI via the GGC, the MRC programme has an ambition to achieve these in-line with this. We recognise that some of these targets need to be developed further in 24-25 to stretch the programme further.

## 8. Challenges and Future Activities

### 8.1 Challenges

The MRC environmental sustainability programme is complex and challenging. It seeks to reduce the MRC's own impact upon the environment, and also that of the life science research sector as a whole. The year 2023-24 has highlighted a number of challenges and weaknesses of the programme. Some of these have begun to be addressed, with others to be addressed in the coming twelve months.

The key challenge is of how to focus the available resources of the programme to ensure that the aims of the project are being achieved, and that meaningful progress can be made. At times this means that deprioritising some activities and workstreams in preference of those which deliver greater reward or set the conditions for long term change.

Much of the improvement being seen within the institutes relies on individuals who are not employed in specific environmental sustainability roles, making changes to their working practices, and introducing sustainability into their everyday work. Where this is the case, more needs to reduce the 'ask' on these staff, by improving messaging, training, and creating accessible resources. The link should be more clearly made between individual or group actions, and the impact on the overall environmental sustainability programme, to give a sense of achievement and recognition to those working hard to make improvements.

Our engagement activities to date have been largely focussed on a sector-wide audience. The seminar series has received good feedback from attendees and each event attracts a larger audience than the last. However, the survey from the landscape review revealed weaknesses within the MRC in terms of staff knowledge of environmental sustainability, or where or how to obtain further information. For this reason, the focus of new engagement activities for the 24-25 year will be internal; particularly the development of training and development of accessible materials to support change.

At programme level, supply chain has been deprioritised, when compared to the other workstreams. This has been a conscious decision, made in the interest of focussing our limited resource on areas in which we could make a meaningful change. The recently concluded UKRI supply chain analysis gives insights as to where to target our efforts moving forward, and we will work with partners to focus our efforts to make improvements on suppliers with the highest impact.

### 8.2 Future Improvement and Focus of the Programme

Over the past 12 months, we have identified areas to improve the environmental sustainability programme, and those areas on which we are required to focus to make the programme a success. These opportunities for improvement have been identified both through the landscape review and by reviewing those activities already in process and looking to improve their effectiveness.

We also support the UKRI environmental programme with certain elements of work where activities cross council lines, as they support ours. A more complete list of activities planned for 24-25 can be found in Appendix A.

#### 8.2.1 Estates and Operations Projects

The net zero feasibility completed in 2023 highlighted an incremental pathway to achieve net zero by 2040, with the greatest importance placed upon the transition for gas-fuelled heating systems to electric. Work has begun on the design of a number of projects designed to assist this transition, with many expected to complete in 2024-25.

These estates projects will include the construction phases of solar PV, solar canopies, and hard landscaping to improve biodiversity. Design will be undertaken on heat decarbonisation, including heat pumps and steam electrification, for all of the buildings where heating, hot water or steam is currently present. Alongside this work will be a programme of data and submetering improvement, as well as building services optimisation, to reduce the electrical baseloads of the sites.

When completed, these projects will reduce emissions by around 400 tCO<sub>2</sub>e per year and set the platform for the net zero transition of our buildings' heat and steam system. These reductions will start to be seen as projects which are currently in design, are completed throughout the year ahead.

A climate adaptation strategy will be developed to ensure business continuity in the face of increasingly extreme weather; and a biodiversity strategy will ensure that species diversity and abundance is maintained and improved across MRC's facilities. These are both essential requirements of the GGC.

### 8.2.2 Outputs from the Landscape Review

The landscape review (see section 5.4) produced a number of recommendations of challenges to be tackled to improve environmental sustainability across the life science research sector. It has been recognised that work must be undertaken to shift culture and behaviour, and to respond to this, MRC plans to undertake work to further understand and review the challenges in depth, develop a framework and metrics to measure improvements, and design training and tools for various cohorts of staff within MRC.

The MRC programme will also look to tackle sector-wide issues regarding waste and substitutes for hazardous materials. It is recognised that this cannot be done alone, and we will be working with, leading organisations in this sector to overcome specific challenges.

A number of the challenges highlighted in the landscape review require change across multiple research sectors and are not restricted to just life science research. This includes the development of standardised frameworks and tools which can be used by the whole research sector, and policies and standards around data retention. Here, the MRC programme will be supporting work being led by UKRI colleagues to improve environmental sustainability.

### 8.2.3 Supply Chain and Engagement

The environmental sustainability seminar series will continue, with two events planned for July and November. The proceedings from the joint conference on research outputs will be published in summer 2024, so that the research can be shared sector wide.

One of the emphases of the work next year will be on the sustainability of the supply chain. A summer internship has been recruited to undertake an investigation of the supply chain and work with key suppliers to improve its environmental sustainability.

## 9. Conclusion

**2023-24 has been a year in which we feel like the basic building blocks are now in place, resourcing and reporting has been better developed, and that a clear plan to achieve net zero has been identified. Although improvements still need to be made, we have a good idea of what they are; we know what we need to do, the priority in which they sit, and how to overcome them. The foundations have been completed; it is now just a case of implementing it!**

The data shows a good trajectory on the path to net zero emissions by 2040. The production of the net zero feasibility report has provided a pathway that, if followed and adequately resourced, will result in achieving net zero emissions before 2040 in an incremental way. A number of the projects required to achieve this are already in design, with construction beginning in the new financial year. Biodiversity and climate adaptation plans will compliment overall sustainability of the estate by making up part of the estates strategy, which will be developed in 24-25, and will ensure compliance with GGC before 2025.

The impact of these projects will start as a reduction in scope 1 and 2 emissions to be seen in the 24-25 reporting year.

The landscape review has helped to shape an understanding of the biggest challenges facing the life sciences sector. We will use the challenges uncovered to shape the focus of our programme moving forward, to ensure that we support the sector as a whole. This will shape our outward-facing engagement and projects, with some projects being led by the UKRI programme, where they lie across individual research councils' remits.

The development of behaviour and culture change, and a programme of environmental sustainability training for MRC staff, is an essential response to the insights provided by the landscape review. Empowering and education staff to own and improve environmental sustainability in their own working practice is vital if the programme as a whole is to succeed.



Developing our engagement strategy formalised how, when, and why we undertake engagement activities. The sustainability seminars are becoming a fixture in a growing number of colleagues' calendars from across the sector; and have proved an excellent outlet to promote best practice, and work together on shared challenges. There are two seminars scheduled in 2024, with a conference also being held to disseminate the output of the MRC funded research into sustainable research practices.

The establishment of fulltime roles tackling sustainability at the institutes has been transformational, as they have started to drive and formalise environmental initiatives, and further develop their respective green groups. The achievement of improved environmental metrics compared to previous years is testament to their achievements.

Establishing a scope 3 emissions baseline for the first time for MRC spend is an important step forward to understanding the size of challenge, and where our efforts can be best focussed, to provide the biggest improvement.

With these foundations in place, we expect 24-25 to be an exciting year of progress for the MRC environmental sustainability programme!





## 10. Appendices

### 10.1 Appendix A – Table of 24-25 Activities

Section 8.2 gives a number of key activities to achieve the aims of the environmental sustainability programme. Below is a table detailing the full list of activities scheduled for 24-25 at time of writing.

Activity	Description
Rooftop solar PV	Solar panels on a number of buildings
Solar canopies	To be installed over carparking at two facilities
Fabric efficiency	External wall insulation, flat roof insulation, high efficiency windows and external doors
Heat decarbonisation	Feasibility and design of electrically-fuelled heating systems to move away from gas-fuelled boilers
Steam decarbonisation	Developing strategy for reducing and ultimately shifting steam demand and moving to electrically-fuelled solution
Landscape improvements	Wildlife pond and soft landscaping to improve biodiversity
BMS and Submetering	Review of all sites to reduce energy demand
Biodiversity Plan	Formalised approach to conserving and improving species abundance at relevant sites
Climate Adaptation Plan	Formalised approach to mitigating risk posed by extreme weather for our facilities and operations
Behaviour and culture change	Development of a framework to overcome barriers to culture and behavioural change within MRC, including the development of training, tools, and engagement materials
Training	Develop and delivery of a training programme to improve knowledge for internal MRC staff regarding environmental sustainability
Seminar series	Continuation of environmental sustainability seminar series, with events in July and November 2024
Research output conference	Dissemination and write up of proceedings of MRC-funding research into sustainable research practice
Supply chain pilot	Summer intern initially to lead project to refine UKRI spend analysis and map high-impact contracts to tackle scope 3 and other environmental impacts
Single use plastic	Formalise the approach to eliminating consumer single use plastics from all facilities by 2025
Reagents and hazardous substance	Working with sector partners to 'moonshot' potential solutions to difficult to remove substances from life sciences

## 10.2 Table of Figures

The following figures are found in this impact report:

<b>Figure 1</b> – Reported emissions by scope	7
<b>Figure 2</b> – aggregate scope 1, 2 and 3 (business travel) emissions by year	7
<b>Figure 3</b> – aggregate scope 1 and 2 emissions by year	7
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<b>Figure 10</b> – Total emissions arising from domestic flights	12
<b>Figure 11</b> – MRC supply chain emission by sector	13



## 10.3 Glossary & Acronyms

The following terms and acronyms are used within this impact report:

**CO2e** – carbon dioxide equivalent. A levelized measure of all greenhouse gases to ease reporting.

**EV** – pure electric vehicle

**GGC** – Greening Government Commitment (2020-2025)

**GHG** – Green House Gases

**LEAF** – Laboratory Efficiency Assessment Framework

**LMB** – Laboratory of Molecular Biology, Cambridge

**LMS** – Laboratory of Medical Sciences, London

**Metres cubed (m3)** – 1,000 litres, standard measurement of commercial water volumes

**MLC** – Mary Lyon Centre at MRC Harwell, Oxfordshire

**MRC** – The Medical Research Council

**Net zero carbon** – a state where the emissions of an organisation are in balance with those emissions offset

**Scope 1 carbon emissions** – direct emissions arising from processes controlled by MRC

**Scope 2 carbon emissions** – indirect emissions arising through the usage of power or heat by MRC facilities

**Scope 3 carbon emissions** – emissions created by the goods and services purchased by MRC

**ULEV** – Ultra low emissions vehicle, as defined in GGC

**UKRI** – UK Research and Innovation, the non-governmental department under which MRC sits



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