

Imperial College  
London

# SUSTAINABILITY STRATEGY 2021–2026



# FOREWORD



**We are living in a rapidly evolving world. Societal vulnerability in the face of climate and environmental change is serious and undeniable.**

The UK government has committed to an ambitious target of 2050 for net zero carbon emissions. The societal, economic and technological consequences of this challenge cannot be overstated, and it is universities like ours that must step up to provide the solutions, collaborations and skills necessary to help us get there. If this challenge wasn't enough, we have the equally serious transition to make society fair and equitable. As we launch our strategy for the next five years, we must bear in mind that the world will change in unexpected ways, as we found this past year. We must have a clear vision, and be prepared to adapt and be agile.

Science and technology, and their translation to business, the public and decision makers, are critical to achieving net zero carbon and building a resilient and equitable society. The development and deployment of technical solutions to respond to changes in the natural world is based on our ability to continually monitor the environment. Rolling out new approaches in every sector demands smart application of science and clear assessments of impact. We also must equip the next generation with the skills and knowledge needed to make informed decisions that will drive the necessary action.

Imperial College London is already at the forefront of research and learning on many of the most pressing challenges we face. The challenge is great, yet we can go further and do more. Our new sustainability strategy places the transition to zero pollution at the heart of what we will achieve in the coming years in research, training and innovation. We will also focus resources to transform our campus and communities into a testbed for new ways of working and living. Our strategy marks an important step for the College. It builds on the progress we have made through 'Greening Imperial' and the work of our Estates team to improve the sustainability of our campuses, and through our outstanding multidisciplinary research centres such as the Grantham Institute for Climate Change and the Environment and the Energy Futures Lab.

Framing a strategy is merely the first step. We are launching our strategy at a time when our attention is directed to managing through a global pandemic and it might be tempting to downgrade or delay commitments to other things. We know we must instead seize the opportunity to accelerate our progress on climate action. Experience tells us that Imperial responds well to challenges and I am convinced that 2020 will prove to be a turning point in our collective endeavours and will see the College as a leading driver for the enormous changes that must come.

I look forward to working with the extended Imperial community and our partners as we set out to achieve this ambitious set of objectives, and to sharing our progress with you.

**Professor Ian Walmsley FRS**  
Provost, Imperial College London

LEFT: Undergraduate Ecology students at the Silwood Park Campus.

# OUR VISION: THE ROADMAP TO 2026 AND BEYOND

Sustainability will shape Imperial's plans and activities at all levels and across all campuses. The College's Sustainability Strategy Advisory Group was established in 2020 to ensure that we turn this notion into reality and, in the context of our considerable but finite resources, set a credible roadmap for its delivery.

Guiding the Advisory Group's work is our ambition to ensure that as well as Imperial leading the world on science and policy for sustainability, we also embed sector-leading sustainable practice throughout our research, teaching and operational activities. This ambition is captured in our vision: to advance our world leading sustainability research and education, and to apply what Imperial excels at to our own activities and to the new challenges facing the world. Our strategy brings together the work underway in estate infrastructure, research and teaching through a single framework for sustainability. Goals will guide our action to 2026 and beyond, and ensure that we maximise the College's contribution to the UN's Sustainable Development Goals.



We will build on our sustainability curriculum.

Our overall, long-term goal is to be a sustainable and net zero carbon institution by 2040. In addition, we anticipate that at the end of this current five-year strategy, this date will be brought forward as we achieve efficiencies within the College and take advantage of the evolving energy landscape in the UK. Our overarching responsibility is to manage the impact of the decisions we make such that they are neither detrimental to the environment nor to society, and still enable the College to thrive in the future.

## Focusing on what matters

Building on the work of the 2017 Greening Imperial study, we interviewed stakeholders inside and outside the organisation, including academic and technical staff, union representatives, student bodies, and business partners. We also launched an online survey with the College community to identify themes where expectations are high and where we have the greatest potential to contribute.

What we heard is that sustainability presents a great opportunity for the College – our sustainability research and education is world leading and we should do more to implement on campus what we learn and teach. Imperial students represent a huge resource for change and influence – now and as future leaders – and we will ensure they have the skills and knowledge that leadership for sustainability demands. Our campuses will become testbeds for our policy, technology and innovation work, and showcase partnership, collaboration and engagement. We must continue



Our long-term goal is to be a sustainable and net zero carbon institution by 2040.

to be a vocal, visible advocate for technology and policy for sustainability, and a solutions-provider to business. Everything we do must be underpinned by the resourcing and governance that will bring the different strands of work underway together and drive change.

## Clear priorities for action for both the College community and our stakeholders emerged from our findings. These are that:

- the complex interplay between climate change, energy generation and human activity requires long-term coordinated planning by the College;
- we monitor the use of all our resources and use them efficiently to minimise waste;
- sustainability is integral to

the College's decisions on the procurement of buildings, services, travel and equipment;

- we ensure that all teaching and research is carried out in a sustainable way;
- students are equipped with sustainability skills and knowledge for the future;
- governance, management and resourcing of sustainability, including our approach to investment, is at the forefront of the College's plans and ambitions.

Sustainability's 'social dimensions', including human rights, diversity and inclusion are integral to our activities. This strategy is focused primarily on the environmental and governance aspects of sustainability, and goes hand-in-hand

with our complementary plan to address the broader UN Sustainable Development Goals: [www.imperial.ac.uk/global-development-hub/imperial-and-the-sdgs](http://www.imperial.ac.uk/global-development-hub/imperial-and-the-sdgs).

## Our Goals Demonstrate sustainability in practice

We will transform our campuses, bringing sustainability principles to bear in our decision-making and investment in buildings, grounds, transport, procurement and partnerships. We will showcase Imperial's research in action, turning our campuses into testbeds for sustainability. Underpinning this goal is our commitment to operate responsibly, including our approach to governance, communications and investment for sustainability.



We must continue to be a vocal, visible advocate for technology and policy for sustainability, and a solutions provider to business

## Finding sustainable solutions together

We will build on our extensive sustainability curriculum to ensure that all Imperial students can access the skills and knowledge they need to lead positive change. We will reshape our research portfolio, with a growing focus on the science, technology and policy solutions needed for a just and equitable transition to a sustainable net zero carbon society. We will empower our external stakeholders and the wider public to find and implement sustainable solutions together.

In the pages that follow, we set out our plans, within the framework of three themes, that collectively will deliver our strategic priorities. Our three themes are:

- Resource Management
- Academic Excellence
- Engagement

We are constantly evolving our Strategy, and expect to add further activities, science-based targets and measures as our work as an institution gathers further momentum in this area. Please get in touch if you have any comments or suggestions, or would like to contribute to the work, on [sustainable@imperial.ac.uk](mailto:sustainable@imperial.ac.uk).



**Professor Paul Lickiss**  
Academic Leader in Sustainability, Imperial College London

# RESOURCE MANAGEMENT

Responsible management of resources is integral to Imperial's aims of achieving a sustainable, healthy, resilient and smart society. Our campuses should also reflect this vision for society, providing a clean and healthy environment in which the wellbeing of our staff and students is a priority.

We are committing to generating science-based targets and improvements in all areas, from energy use, water management, waste reduction and catering, to active travel, sustainable procurement and biodiversity.

With these commitments built into the College's wider mission, all our staff and students will not only be aware of the changes they can make as individuals, but also be enabled to make these changes as part of the College community to create a sustainable future.

Underpinning these commitments is our aim to create a shared vision for sustainability. We will achieve this not only through governance and management, building capacity, and demonstrating leadership by example, but also by empowering and inspiring our community and facilitating change within all levels of the College.

## ENERGY USE

**Aim:**  
To achieve carbon neutrality for Scope 1 and 2 emissions by 2040, minimising Scope 3 emissions where possible, while at the same time ensuring that the College continues to provide world class facilities to support its overall strategy of achieving enduring excellence.



**We will:**

- reduce total Scope 1 and 2 carbon emissions arising from energy consumption by 15% by 2025–26 against the baseline year 2018–19;
- assess the options available to increase on-campus renewable energy generation;
- develop a roadmap towards a carbon neutral south site of our White City Campus;
- continue to procure 100% of our bought-in electricity through a Renewable Energy Guarantees Origin (REGO) backed tariff (this significant step in reducing the College carbon emissions was taken in October 2019);
- undertake work to establish science-based targets to be used across all campuses;
- improve the control of all building infrastructure and energy use and

- enhance data gathering through our building management systems;
- continue to upgrade and enhance existing building services infrastructure to improve sustainability and energy performance;
- identify and seek funding for building fabric improvement such as façades, glazing and insulation that are more efficient and will effect the reduction of energy consumption.

**Measures of progress: Reduction in total carbon emissions from energy use:**

- Total (tonnes CO<sub>2</sub>e); by staff and students (tonnes CO<sub>2</sub>e/FTE);
- By total income (tonnes CO<sub>2</sub>e/£);
- By building area (tonnes CO<sub>2</sub>e/m<sup>2</sup>).

**Laboratory Efficiency Assessment Framework (LEAF)**

Research groups and facilities from seven departments across Imperial took part in the national LEAF scheme in 2019–20. Teams made use of the sustainability guidance in the LEAF Workbook to address energy efficiency, waste management, sharing resources and ensuring that good induction and leaving procedures were in place. Despite the challenges presented by the coronavirus lockdown, many teams managed to submit calculations on the savings accrued from their LEAF actions: typically £1,000–£10,000 per year for each group. Improved management of fume cupboards, freezers and waste led to the highest savings and reduced the environmental impact of research. The results were impressive – our laboratories were awarded six silver and 15 bronze LEAF certificates. The LEAF scheme will run again in 2021 in an expanded form across more laboratories.



# WASTE MANAGEMENT

## Aim:

To ensure the responsible management of all waste streams arising from our activities, using innovative solutions to reduce our consumption of single-use items, to reuse materials and recycle waste produced as much as possible.



## We will:

- reduce waste sent to landfill from all College sources by being efficient in use of our resources and in reusing and recycling unwanted materials;
- investigate further the reduction, reuse and recycling of varied materials used in laboratories that are currently sent to landfill or for incineration;
- increase the use of WARPit to reuse College equipment and furniture;
- promote student recycling schemes for unwanted bedding and other items to be given to charities.

## Measures of progress:

- Reduction in total amount of various wastes sent for recycling compared to waste going to general landfill (tonnes per year);
- Reduction in emissions from our waste related activities (tonnes of CO<sub>2</sub>e per year);
- Increase in number of equipment and furniture reuse transactions via WARPit, waste and emissions saved (tonnes waste/CO<sub>2</sub>e per year);
- Increase in quantity of food, bedding and other unwanted goods collected from students for donation to charity (tonnes per year).

## WARPit

Imperial participates in the WARPit scheme, a redistribution network allowing individuals and departments alike to give away or loan items they no longer require, but which others may have a use for. For example, space undergoing a refurbishment can be furnished through WARPit with perfectly serviceable items. WARPit brings the unused into use, saves money, frees up space, diverts resources from landfill, reduces carbon emissions and saves on the costs of removal and disposal. In the 2018–19 academic year the scheme had 205 transactions (a 6% increase on the previous year), saving 28.77 tonnes of carbon emissions and reusing 4.72 tonnes of potential waste materials.

## Electrical waste

All Waste Electrical and Electronic Equipment (WEEE) produced by the College, for example computers, fridges and laboratory equipment is collected by an external contractor: items still of use are then resold, and equipment that cannot be remarketed is stripped to recover materials for recycling and reuse.

# WATER MANAGEMENT

## Aim:

To ensure the responsible management of water resources, reducing our consumption and preventing pollution of the natural environment.



## We will:

- work to reduce total and per person water consumption and continue to use the UK government's Aquafund framework to carry out detailed audits of our water use;
- install water control devices and more automated meters to better understand trends in water usage and to enable benchmarking, monitoring and target-setting;
- work with laboratory managers to promote the use of the Laboratory Efficiency Assessment Framework (LEAF) to reduce water consumption;
- trial alternative equipment that

does not rely on water in laboratories, for example waterless condensers;

- increase the use of recirculating coolant systems in laboratories and enhance building infrastructure to enable water savings to be made;
- install gray water and rainwater harvesting systems where possible.

## Measures of progress:

- Reduction in total College use of water (m<sup>3</sup> per year);
- Reduction in water usage per person (m<sup>3</sup> per year).



## Reducing water use in our labs

Laboratories use large amounts of water for cooling both equipment and chemical reactions via condensers. Use of waterless condensers in the first year Chemistry laboratory has recently resulted in a saving of approximately 20m<sup>3</sup> of water over a single term. Use of waterless condensers is being introduced across further teaching courses, and in research laboratories, chemists have found that an individual may save 5m<sup>3</sup> of water per week. A reduction in running water in laboratories also reduces the risk of floods within buildings. Use of recirculating coolant systems is being increasingly used with laboratory equipment such as rotary evaporators and spectrometers. In the Department of Civil and Environmental Engineering, this change has saved over 250m<sup>3</sup> of water per year.

**20m<sup>3</sup>**  
Water saved over a single term in 2018–19 in a single teaching laboratory

# SUSTAINABLE PROCUREMENT

**Aim:**

To use our influence with our suppliers and partners to procure environmentally-friendly supplies and services, to reduce consumption and, where possible, purchase goods and services which may be manufactured, used and disposed of in an environmentally-responsible way.



**Collaborative purchasing**

A recent project running from 2018–20 to replace old autoclaves (steam sterilisation equipment) took a holistic approach with input at departmental and faculty level and worked with our Purchasing Project and Estates teams. Running costs of electricity, steam, water consumption, maintenance and service contracts on plant, as well as the autoclaves themselves were considered, together with insurance inspections, the staffing costs to run the facility and the upfront cost of their initial purchase. Overall, this led to a reduction in the number of autoclaves needing to be purchased, and introduced greater energy efficiencies.

**30% reduction in number of autoclaves purchased**

**We will:**

- develop appropriate metrics to measure progress in influencing our suppliers and partners to procure environmentally-friendly supplies and services;
- assess all potential suppliers on their environmental policies such as BS7750, EMAS and ISO 14001, and continually monitor our major suppliers on their environmental policies and practices;
- work with major suppliers to develop and share, where appropriate, environmental policies and minimise

the supplier base to reduce the College's carbon footprint;

- support staff to understand the environmental impact of purchases, considering the whole life cycle cost of equipment and services.

**Measures of progress:**

- Increase in percentage of purchases from environmentally responsible suppliers.

# SUSTAINABLE CONSTRUCTION AND REFURBISHMENT

**Aim:**

To consider sustainability at all stages of refurbishment and new building planning, and to work with architects and contractors to minimise the environmental impact of construction.



The Molecular Sciences Research Hub is certified BREEAM Excellent and has won an S-LAB Award for its safe, successful and sustainable laboratories.

**We will:**

- plan for our next academic building, The School of Public Health, on the White City Campus to be BREEAM excellent;
- design buildings and infrastructure with low-cost, low-frequency maintenance and easy access to space, plant and equipment;
- optimise passive design features, such as increasing daylight and natural ventilation and reducing heating and mechanical cooling, and increase the wellbeing of students, staff and visitors through improved building design;
- maximise low and zero carbon technologies such as solar photovoltaic and ground source heat pumps;
- carry out life cycle cost analysis of construction and refurbishment on all projects to ensure that sustainability considerations are taken into account;
- benchmark all construction and refurbishment projects against

ambitious external environmental performance certifications, for example the Building Research Establishment Environmental Assessment Method (BREEAM) and the Royal Institution of Chartered Surveyors SKA Rating for Higher Education.

**Measures of progress:**

- Increase in percentage of new buildings of new buildings that are certified at least BREEAM Excellent or equivalent;
- Increase in percentage of refurbishment projects that are certified at least BREEAM Very Good or equivalent;
- External awards for sustainable construction and design;
- Improvements in building energy efficiency.

**BREEAM Excellent**  
The MSRH in top 10% of UK new non-domestic buildings



**Molecular Sciences Research Hub**

The Molecular Sciences Research Hub (MSRH), the new research home for the Department of Chemistry, was awarded BREEAM Excellent Certification for its overall environmental and operational performance. BREEAM sets best practice standards for the environmental performance of buildings through design, specification, construction and operation. In 2019, the MSRH was also awarded the S-Lab (Safe, Successful, Sustainable Laboratories) Award in the Refurbished Buildings and Spaces category. The S-Lab Awards are recognised around the world as the benchmark for good laboratory design, operation and management.

# CATERING

## Aim:

To work with our suppliers to ensure that food and drink are sourced responsibly, food miles are minimised and the effects on the wider environment are taken into account, and to increase consumer awareness of the environmental impact of food and drink.



## We will:

- work to develop and implement a sustainable food policy;
- use innovative menus and promote meat-free meals to reduce the amount of meat used in College catering;
- work with our suppliers to reduce the use of unsustainable catering supplies;
- work with suppliers to ensure that all fish served in College catering outlets is Marine Stewardship Council certified;
- continue to replace plastic and single-use items throughout catering operations, for example by continuing the disposable cup levy;

- introduce more water fountains and encourage the use of refillable drinks containers.

## Measures of progress:

- Reduction in plastic and single-use items used and sold through College catering outlets;
- Reduction in waste produced from catering operations;
- Reduction in amount of meat used in College catering;
- Reduction in amount of palm oil used from non-sustainable sources.



## Plantworks

Launched in April 2019 on the South Kensington Campus, Plantworks is Imperial's first entirely plant-based and vegan catering outlet. Plantworks features a bespoke and fresh menu of plant-based foods and drinks, encouraging staff and students to choose a healthier option at lunchtime and make their diet more sustainable for the planet.

## Drink, Refill, Repeat

The Drink, Refill, Repeat campaign, a collaboration between Campus Services and Greening Imperial, encourages students and staff to transition from disposable drinks bottles and toward reusable containers. To support this, we have introduced new water fountains across our campuses and removed plastic cups from water stations, saving approximately 850,000 plastic cups per year.

**850,000**  
number of plastic cups saved in 2018-19

# BIODIVERSITY AND ECOSYSTEMS

## Aim:

To raise awareness of the College's natural environment and promote biodiversity across the College estate, act as stewards to safeguard and conserve natural ecosystems, and where possible, ensure construction or refurbishment work undertaken by the College and contractors has a net positive impact on biodiversity.



## We will:

- map biodiversity on all College campuses and monitor its health and growth;
- where possible, increase the number of green walls, roofs and spaces to maximise benefit from Imperial's limited urban campuses;
- continue to enhance the ecology, conservation and environmental work carried out at Silwood Park, the College's rural campus;
- make biodiversity considerations integral to planning;
- increase planting of trees and drought resistant plants to create a greener environment and improve wellbeing of staff and students;

- utilise and enhance natural resources like the Secret Garden at the South Kensington Campus;
- encourage and equip staff and students to become stewards of green space on campus and beyond.

## Measures of progress:

- Increase in area of roofs, walls and other spaces with improved biodiversity;
- Increase in number and variety of wildlife species recorded as present on our campuses.

## The Secret Garden

The Secret Garden is a haven amidst the South Kensington Campus open to all staff and students. It is home to the Imperial Apiary Project, run by the College's Environmental Society, which produces significant amounts of honey. Waste piles are shredded, left to biodegrade and the resulting compost used on lawns and planted areas.

## Biodiversity at Silwood Park

Our Silwood Park Campus provides important habitats including wet woodlands, acid grasslands, traditional orchards and parklands. These provide havens for a wide range of wildlife such as ancient trees which support many rare species of insects, lichens and fungi. Some of these habitats and species are considered scarce, vulnerable, or in need of protection under national and international conservation schemes.

## Green roofs

Green roofs are habitats for wildlife, absorb rainwater, help to improve wellbeing and help to mitigate against the heat island effect. Green roofs can be found on the South Kensington Campus and at the White City Campus on the new MSRH and I-HUB buildings.

# TRAVEL

**Aim:**  
To promote climate conscious travel among staff and students in order to reduce the environmental impact of College-related travel.



A Dr Bike mechanic checks a student's bicycle.

- We will:**
- develop a sustainable travel policy by 2022;
  - provide staff and students with innovative virtual and video conferencing tools to advance collaboration and increase conference participation, while reducing the need to travel;
  - develop appropriate mechanisms to encourage less air travel (such as a carbon tax or frequent flyer levy) and mitigate some of the impact of necessary air travel (for example by carbon offsetting), taking care that reductions in aviation emissions are distributed fairly across the Imperial community;
  - provide incentives for low-carbon travel, for example participating in the government's Cycle to Work Scheme and permitting slow travel days for greener modes of transport;
  - improve data collection on staff and student travel, particularly by air, to benchmark and develop accurate targets for the future;
  - promote the use of public transport and active travel to and from campuses, including improving cycle facilities, and engage with local councils to identify

- opportunities for improvements to active transport options between and around our campuses;
- replace existing College petrol or diesel vehicles with electric or hydrogen alternatives where possible for use on campus and between campuses;
- introduce solutions to enable College members to move from being owners to being users of the means of transport;
- reduce the number of vehicles on campus as far as possible and increase electric vehicle charging points for staff and visitors.

- Measures of progress:**
- Reduction in carbon emissions from air travel by 25% by 2026 against the baseline year 2017–18 (tonnes of CO<sub>2</sub>e per person per year);
  - Increase in sustainable modes of commuting both to and from College and between campuses (methods for assessing per capita carbon emissions from air travel and travel surveys are being investigated by the College to enable more detailed KPIs to be developed).

**Profs Who Fly**  
Profs Who Fly is a socially responsible carbon offsetting system where Climate Damage Mitigation Certificates are purchased. The income generated directly supports sustainable development projects around the world that remove carbon from the atmosphere through biological sequestration. Originally developed by our Centre for Environmental Policy, offsets can now be purchased by any member of staff through the College's procurement systems and charged to projects, departmental codes or research support accounts.

**Active travel**  
Move Imperial aims to support staff and students in making their transport to campus – and across London – more active. From route maps to financial support, staff and students can find guidance on the College's Active Travel website to transform their commute into one that is healthier for themselves and the environment. Move Imperial also provides information for staff applying to the government Cycle to Work scheme, which can help save up to 39% on the cost of a new bike.

# GOVERNANCE AND MANAGEMENT

**Aim:**  
To provide oversight, direction and focus to the College's actions on sustainability and climate change. This will be done by creating a shared vision for sustainability; building capacity; empowering and inspiring staff, students and College leaders; facilitating change within the College at all levels and demonstrating leadership by example.

We will influence decision making across the College so that every aspect of the College's work is compatible with the Sustainability Strategy.



- We will:**
- establish a Sustainability Advisory Board under the direction of the Academic Leader for Sustainability;
  - strengthen and build on existing evaluation processes, and ensure that annual reports are developed to assist in monitoring progress and decision-making;
  - ensure that sustainability is an integral part of decision-making

- at all levels, including long-term academic and financial planning;
- empower the College community to engage widely in action on climate change and sustainability, working in partnership with each other and with senior leadership;
- benchmark our sustainability performance against national and international institutions.



**Developing the Sustainability Strategy**

In November 2019, Professor Paul Lickiss, the College's first Academic Leader for Sustainability was appointed with a remit to develop a Sustainability Strategy for the College. The Sustainability Strategy Advisory Group advised on key matters relating to environmental sustainability and considered progress made and best practice across the higher education, and College-level challenges. Both internal and external stakeholders were interviewed to inform the scope of the strategy and feedback from a College-wide survey in June 2020 fed into its development.

**1,155**  
Sustainable Imperial survey responses

# ACADEMIC EXCELLENCE

**Our goals to demonstrate sustainability in practice and share our learning with the world focus us on the impact of teaching and research – the ‘handprint’ of Imperial that goes well beyond our operational footprint. Capturing and reporting the progress we are making through our core activities is more complicated, but our aim is to be more systematic and effective in harnessing the great research and teaching that goes on at the College in the quest for solutions to the challenges ahead.**

**The College’s Learning and Teaching Strategy sets out our commitment to ensuring that an Imperial education is recognised as globally outstanding in the fields of science, engineering, medicine and business, with a focus on the skills needed to address current and future global challenges. Our portfolio of sustainability courses is designed to equip our students with the knowledge and understanding to become leaders in their fields. We now plan to build on this foundation by making knowledge and skills for sustainability increasingly central to all learning at Imperial.**

## ACADEMIC EXCELLENCE

### Tackling global challenges

Imperial’s pioneering research in sustainability is helping to shape a cleaner future for all. Through our highly-collaborative and multidisciplinary approaches, the College contributes significantly to the science, policy and innovation guiding the transition to a more sustainable society. From fundamental discoveries about our planet’s climate system, to development of low-carbon technologies, the ground-breaking research undertaken in our faculties, centres, networks and Global Challenge Institutes will allow us to develop new insights and knowledge to help make sustainable change. The Grantham Institute for Climate Change and the Environment sits at the heart of our work on climate change and the environment and is one of six Global Institutes established to promote inter-disciplinary working and to meet some of the greatest challenges faced by society. The Energy Futures Lab is another of our institutes which aims to tackle major sustainability challenges by promoting energy innovation and advancing systemic solutions for a sustainable energy future. The Environmental Research Group, part of the School of Public Health, is a leading provider of air quality information and research in the UK, combining air pollution science, toxicology and epidemiology to determine the impacts of air pollution on health. In the Imperial College Business School, the Leonardo Centre for Sustainable Business envisions a society where companies pursue profit for societal impact, exploring and experimenting with the transition to sustainable and inclusive logics of enterprise. The Centre for Responsible Leadership at the Business School will help businesses redefine their approach to leadership through

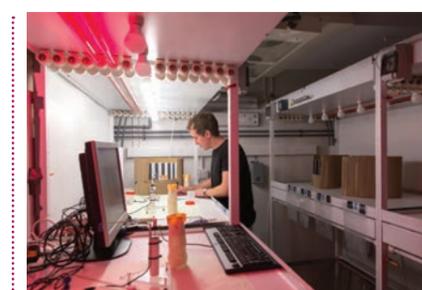


Professor Jason Hallett from the Department of Chemical Engineering. His research focuses on how ionic liquids could be used in biofuels, sustainable chemical feedstocks and recycling.

evidence-based research that addresses the key economic, social, environmental and technological challenges facing organisations today. We are also creating a Centre for Climate Change Innovation which will bring together a critical mass of expertise around climate change solutions technology to catalyse the development of a world leading climate change innovation cluster. All these efforts bring together the science, engineering, medicine, business and policy expertise at the College and foster collaboration with a wide variety of external partners.

### Teaching the leaders of the future

We know students are looking for a better understanding of the many challenges we face and of the solutions coming on-stream, many of which are being developed through our own research. A growing number of students recognise



that sustainability questions will dominate their careers, whatever professional path they take – including those destined for leadership roles in industry, the public sector and civil society. We will respond to student and societal needs both by building sustainability into the curriculum and increasing the number of sustainability courses. This will also provide access to relevant modules and courses to all students, and increase our focus on the skills required to lead and drive change.

## ACADEMIC EXCELLENCE



## ACADEMIC EXCELLENCE

LEFT: Undergraduate students Dario Mongiardi and Jedidiah Cheung from Team CleanSea working on their idea for the Faculty of Natural Sciences Make a Difference competition. The team developed a technology that could filter hazardous microplastics from wastewater before they enter the ocean.

as BIO-F Solutions have benefited from Enterprise Lab support to advance their aim of transforming the way our food is produced by developing eco-friendly fertilisers. Welcoming new sustainability startups to the Imperial White City Incubator community also enables our entrepreneurial activity to drive our ambition for a sustainable society. A number of startups have joined the Incubator community to advance their technologies for renewable energy and sustainable food industries. Multus Media, formed by Imperial students, is developing next-generation growth media to enable the cultivated meat industry to scale production and make more affordable products; RFC Power is developing a low-cost, long-duration battery with the aim of facilitating the transition to 100% renewable energy. The College is committed to working with industry for a greener future, exerting our influence by engaging with wider society through key stakeholders.

The Endowment and other investments are a key part of the College. They support the mission through the income they generate and act consistently with, and as part of, the College's vision, mission and values. The College's Socially Responsible Investment (SRI) Policy will ensure that any investment decisions take into account the same social, environmental and governance concerns as the College, including pursuing an active approach to engagement with its investments in all asset classes. This proactive approach is at the core of the College's mission and an SRI Engagement Group has been established to develop and implement methods to monitor and assess progress we are making to influence fossil fuel companies through our research, collaborations and education programmes and as a world leading university.

Our diverse offering of courses includes the BSc in Ecology and Environmental Biology which enables students to focus their study on important ecological and environmental topics such as climate change, biodiversity and conservation. The Silwood Park Campus – our global centre for research and teaching in ecology, evolution, and conservation – is home to a variety of postgraduate courses such as the MRes in Ecosystem and Environmental

Change. We are also training future leaders in the sustainability field through courses such as our MSc in Sustainable Energy Futures and our MSc in Climate Change, Management and Finance. The application of scientific knowledge, policy and engineering to solve environmental problems and address sustainability is also a focus of our MSc in Environmental Technology, through which students acquire a diverse range of discipline-specific problem-solving frameworks for tackling contemporary environmental issues. These specialist courses are complemented by a wide range of undergraduate and postgraduate opportunities to learn more about sustainability through additional module options, such as our I-Explore STEM modules on Climate Change – Science and Solutions, and the Horizons Programme for undergraduates. Our suite of free online courses, including our edX courses, encourage our wider community

to engage and learn more about sustainability research at the College.

### Engaging with policymakers

The Forum, Imperial's policy engagement programme, has been helping Imperial researchers contribute to key public policy debates around sustainability. On the topic of air quality, The Forum organised for two researchers to brief the Department for Transport officials and the Chief Scientific Adviser, and supported the Environmental Research Group in the School of Public Health to respond to the House of Commons Environment, Food and Rural Affairs Select Committee inquiry into air quality. The Forum also organises bespoke workshops for civil servants to hear about Imperial research on various topics, including the circular economy, city fires, plastics, and water management and flooding.

The College's multi-faculty networks provide an opportunity for researchers

from across Imperial to bring together expertise from their respective fields to address environmental problems and support evidence-informed policy development. The Ocean Plastic Solutions Network, for example, contributes to the Greener Plastic Future project, which aims to create a technical, socio-economic and policy roadmap for how the UK can prevent waste plastics from entering the environment. A focus on evidence-based policy making is also at the

heart of the Centre for Environmental Policy's mission to provide a unique and interdisciplinary research interface between science and technology, and the economic and policy context in which it is developed and applied.

### Sustainable enterprise

Promoting the next generation of entrepreneurs through our Enterprise Lab programmes is just one of the many ways in which the College supports the development of sustainable enterprise. Flagship programmes such as WE Innovate, which champions female entrepreneurs, and the Venture Catalyst Challenge provide unique opportunities for Imperial students and alumni to develop innovative ideas for commercialisation. The Faculty of Natural Sciences Make-a-Difference competition brings together undergraduate students in teams to develop low-cost technology for societal benefit. Companies such



WE Innovate winner, Olivia Ahn has developed Planera, a flushable sanitary pad.



A workshop for the College's policy engagement programme, The Forum.

# RESEARCH FOR SUSTAINABLE DEVELOPMENT

## Aim:

To expand sustainability and climate change research, helping societies to become healthier, smarter and more resilient. We will ensure our operational activities will be informed by our world-leading research.



Dr Apostolos Voulgarakis discusses the impact of wildfires on air pollution and cloud formation with PhD students Alexander Kuhn-Regnier and Yawei Qu.

## We will:

- continue to drive the sustainability and climate change agenda through our world leading research;
- foster collaboration between operational and research-led activities to develop our campuses as 'living labs', applying research to our everyday operations;
- facilitate network-building across our research community in the field of sustainability and climate change;
- develop our communications to provide a clear source of information on our research activity for both our internal and external community,

for example, through the Global Development Hub [www.imperial.ac.uk/global-development-hub](http://www.imperial.ac.uk/global-development-hub);

- expand our portfolio of research and innovation activities that have a positive environmental impact.

## Measures of progress:

- Increase in number of researchers engaged in projects related to sustainability and climate change;
- Increase in funding for our portfolio of research in sustainability and climate change.



## Transition to Zero Pollution

One of the first initiatives arising from the College's new Academic Strategy is the launch of Transition to Zero Pollution, a transdisciplinary approach to tackling all forms of pollution in a holistic way. This involves collaboration across all aspects of College research including, engineering, healthcare, business policy and fundamental science to address both local and global needs and to realise our vision of a zero pollution future. Mary Robinson, former UN High Commissioner for Human Rights and a renowned global climate justice campaigner, gave a keynote address at the online launch, arguing for climate justice and highlighting that: "Zero pollution is a timely and valuable holistic concept to guide policy makers as the world tries to develop a viable and sustainable post-pandemic recovery."

# EDUCATION FOR SUSTAINABLE DEVELOPMENT

## Aim:

To provide all students with learning opportunities to develop their understanding of sustainability and equip them with the skills and resources needed to apply their learning to contribute to a more sustainable society.



A final year Biochemistry student working on a research project exploring plant physiology.

## We will:

- continue to be have a positive impact on society through our world leading education;
- train future leaders in sustainability and equip our students with the resources to act sustainably;
- review the current curricula (with support from programme and module leads) to suggest ways to incorporate more sustainability and action on climate change;
- incorporate sustainability into induction programmes for every new student and member of staff;
- engage with alumni in positions of impact related to sustainability and climate change;
- review teaching laboratory infrastructure and operations to make them more sustainable, e.g. by reducing solvent use;

- develop the leaders of tomorrow, ensuring they have the knowledge and skills they will need to drive change for a better world.

## Measures of progress:

- Increase in number of departments to have an Education for Sustainable Development curriculum plan to incorporate more sustainability into their modules and degree programmes;
- Increase in number of courses and departments that have sustainability integrated into inductions and throughout the degree course;
- Increase in number of Imperial alumni driving sustainability via senior positions in business, government and civil society.

## Horizons Programme – My World: Be Sustainable

Imperial Horizons is the Centre for Languages, Culture and Communication's flagship programme for undergraduates. Horizons offers students a wide range of modules they can take alongside their degree to stimulate their personal, professional and intellectual growth. The Horizons module 'My World: Be Sustainable' offers students the opportunity to work together to explore their own sustainability footprint and design and test sustainability innovations to limit their impact on the environment.

## The Science and Solutions for a Changing Planet Doctoral Training Partnership

This unique and prestigious doctoral training opportunity, funded by the Natural Environment Research Council (NERC), and based at the Grantham Institute, integrates six host partners and private and public sector partners to train and inspire a new generation of environmental experts and leaders to tackle some of the toughest challenges of our time.

# ENGAGEMENT

Students, staff, our local partners and the communities where we are based all have a stake in sustainability at Imperial and we are committed to working with them to drive change on the ground. We know from surveys that Imperial students, alumni and staff have high expectations of the College – particularly in implementing what we learn and teach, and in the way we operate our campuses – and our community are keen to support with action.

The London Boroughs of Kensington and Chelsea, Hammersmith and Fulham, and Westminster are important partners in the management and development of our main sites and the links between them. We also share their objectives on many themes from tackling climate change and air pollution, to improving the quality of life of people living and working in the area and creating more opportunities for our local community.

Our many partners in business are also central to delivering our research and educational ambitions. Imperial is also part of the global community acting to achieve the United Nations' Sustainable Development Goals, which connect our research and teaching to action on the ground to tackle environmental degradation, poverty, inequality and lack of access to healthcare and education.

## ENGAGING WITH OUR COLLEGE COMMUNITY

### Imperial College Union

The Imperial College Union Ethics and Environment Network is a supportive network within the student community aiming to create a greener campus for all. The Network supports and coordinates ethical and environmental campaigns across the College and engages in discussions with the Union and College on ethical and environmental policies. The Imperial College Union Environmental Society builds on this work, bringing together students with a common passion for the environment and engaging students with nature through the Society's Secret Garden and beehives. The Society promotes a sustainable lifestyle for students all across campus through sustainability talks and workshops.

### Student Switch Off Campaign

Our students have been reducing their impact on the climate crisis by taking personal action in halls through Imperial halls of residence Student Switch Off Campaign. In 2019–20, 831 students pledged their support for the campaign, with 22 training as ambassadors and a further 1,857 students participating in the National Climate Quiz. The campaign also achieved a 5.6% reduction in consumption of electricity compared to the baseline from 2017–18 and 2018–19 for the months of full occupancy in halls where data were recorded.

### Imperial Insights

Imperial Insights is the College's induction and welcome event for new staff. During the session, staff from a variety of departments provide an overview of Imperial and highlight important issues currently facing the College, including sustainability challenges. The College's Estates Facilities team offer practical guidance on how



Volunteers from Imperial College Union during the Environmental Society's annual Go Green Week.

staff can make greener choices at work through simple actions such as recycling, reusing containers and switching off their computer when not in use.

### Alumni engagement

We are engaging through events, communications and volunteering opportunities. For students and recent graduates, the Alumni Insights event, Let's Talk Green Careers, provided an opportunity for experienced alumni to share sector-specific advice to those new to, or interested in, a career within the green sector. The Alumni Relations team have also hosted an industry-level alumni panel discussion on sustainability and economic recovery

and discussions on Imperial Plexus to facilitate further conversations outside the event. The team regularly collaborates with the Grantham Institute and Energy Futures Lab on events and are planning to host an alumni event around the 2021 UN Climate Change Conference (COP26). The College's sustainability news and events reach 80,000 alumni through monthly e-newsletters and there are plans to create a sustainability Professional Interest Network (PIN) led by alumni volunteers from the sector. PINs provide a forum for alumni and professionals working in a specific sector to share ideas, challenges and expertise, and address relevant topics of interest.

# WORKING WITH OUR COLLEGE COMMUNITY

**Aim:**

To engage the Imperial community of staff and students in improving the environmental and social impact of the College.

To promote knowledge exchange and best practice by building capacity across all departments, and encourage all students and staff to embed sustainability practice in all their activities.



**We will:**

- establish diverse and inclusive networks of staff and students, such as a Sustainability Champions Network;
- continue to hold an annual Sustainability Week to showcase current activity and to provide staff and students with the knowledge to enable them to act more sustainably at work and home;
- provide all staff with training to equip them with the skills to have a positive impact on the environment;
- provide regular communications to our community about current initiatives, strategy development and practical guidance to bring about positive change and contribute to a more sustainable society;

- work with Imperial College Union to support the development of engagement activities for our students;
- continue to engage Imperial alumni in our sustainability work;
- create open and welcoming campus environments.

**Measures of progress:**

- Number of staff and students attending sustainability training and events;
- Impact of staff and students actively participating in sustainability networks and initiatives to create more environmentally-friendly campuses.

**Greening Imperial**

Greening Imperial is a cross-campus and community initiative that aims to make Imperial a pioneer and exemplar in sustainability. Greening Imperial's achievements include working with the Campus Services team to help bring about a 20% reduction in meat consumption in catering outlets from 2017–18 to 2018–19 thanks to changes in customer choice, tweaks in menu options and an increase in vegetarian and vegan options. The initiative has also hosted the Greening Imperial Week, an Imperial College Union-led showcase of events and activities around campus focused on sustainability and the environment. Each day of the week highlighted a different theme, from food, travel and waste, to energy and lifestyle, offering students and staff the opportunity to learn about the small adjustments they can make to their daily routines to help the environment.

**85%**  
of undergraduate students want to be involved in sustainability activities at the College  
(Sustainable Imperial survey)

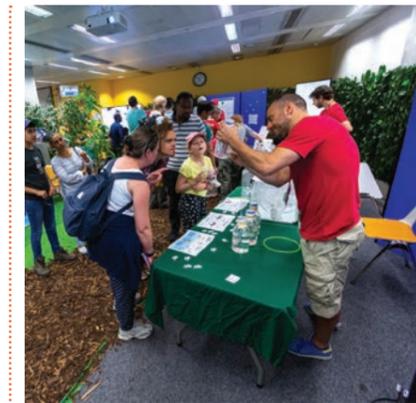
# ENGAGING WITH SOCIETY

**Aim:**

To work collaboratively with our local communities and the wider public to develop appropriate actions addressing sustainability challenges. We will create public engagement opportunities related to sustainability locally, nationally and globally.

**We will:**

- make our sustainability research accessible and responsive to the needs of society to address local and global environmental challenges;
- engage populations locally and globally to develop evidence-based policy recommendations to find solutions to environmental challenges together;
- empower the public to make informed choices about sustainability, both in terms of personal behaviour and the development of wider policy;
- encourage our staff and students to be sustainability champions both on and off our campuses, recognising their responsibilities as citizens of a wider society;
- build capacity and act as leaders in creating opportunities for sustainable action;
- continue to build strong relationships with our international partners and global community of alumni to address the challenges of climate change;
- continue to collaborate with our local authorities on the sustainability of our campuses and London in general;
- bring our sustainable development agenda to bear, with our partners in business, to ensure that our work together maximises its contribution to sustainability;
- ensure that our institutional sustainability targets contribute to the wider London plan for tackling climate change;
- use the UN Sustainable Development Goals as a basis for research and partnership locally and globally.



Visitors explore the Greener Futures Zone at the Great Exhibition Road Festival 2019.

**Measures of progress:**

- Increase in number of collaborative initiatives around the theme of sustainability;
- Increase in number of external partners engaged with sustainability projects and programmes;
- Increase in number of Imperial staff and students engaged with external bodies and diverse public audiences influencing the sustainability agenda;
- Increase in number of public participants engaging with sustainability-related learning opportunities;
- Increase in the proportion of participants or partners reporting increased confidence and positive intentions in relation to addressing sustainability challenges as a result of engagement with the College.



**Community Science Seed Fund**

The College's Community Science Seed Fund was launched to offer small grant funding to local residents and community groups seeking to engage with STEM education and research. One of the ground-breaking projects supported through the fund is Bubble & Squeak, a social enterprise led by primary school children on East Acton Estate, which brings the community together to tackle the problem of food waste. Local children organise a wide variety of activities from hosting a weekly surplus food stall and intergenerational community events, to running a community garden and collaborating with diverse partners. The College has been supporting Bubble & Squeak's Super Scientist Soup project which aims to explore STEM while fighting food waste.

# WORKING COLLABORATIVELY WITH OUR PARTNERS

At our new innovation campus in White City, our Community Engagement team is working with the Grantham Institute for Climate Change and the Environmental Research Group to engage local residents and community groups in sustainability research and policy development – focusing on the challenges faced by urban areas and particularly for Black, Asian and Minority Ethnic (BAME) communities.

In recent years, we have been reaching out to community groups and organisations from across the local area and have been holding workshops with residents to enhance our understanding of local sustainability concerns and priorities, as well as sharing findings and toolkits with policy makers in local government. The next stage of our engagement is to develop localised networks that bring together researchers and residents to investigate sustainability issues and develop evidence-based actions and policies that can make a difference to people's lives.



Visitors at Bugs! day at the Silwood Park Campus.

One action we have taken, in partnership with the London Borough of Hammersmith and Fulham, has been to support the work of Arborea, one of a number of sustainability startups on the White City Campus to develop pioneering 'BioSolar Leaf' technology to improve air quality. The technology, the first of its kind in the world, purifies the air through the photosynthesis of microscopic plants, removing greenhouse gases from the environment whilst generating breathable oxygen.

### Public engagement

We deliver a varied programme of activities to engage and involve young people, adults and families with sustainability issues and research. We will expand and improve on these programmes, with a focus on reaching people typically underrepresented and underserved in this area.

Our Great Exhibition Road Festival (previously known as the Imperial Festival) has regularly featured a Green Zone exploring environmental and sustainability issues, attracting thousands of visitors each year. In 2021, the Festival will include an even greater emphasis on climate change with a new interactive area designed to empower young families to work towards a cleaner and greener future.

In addition, our popular Imperial Lates series regularly features activities focused on sustainability themes, connecting our researchers with adult audiences through creative, memorable experiences. The Greenovate Late in 2018 engaged 700 visitors, with 81%



LEFT: Local children from White City explore Hammersmith Park as part of Creative Roots, an outreach programme run jointly by Imperial and the Royal College of Art.

of attendees saying they went away with a better understanding of how Imperial is working to tackle the environmental challenges we face, while 88% of attendees felt they had the opportunity to discuss these issues with researchers. Twenty Imperial teams participated from research areas such as air pollution, ocean plastics and water management.

### Schools outreach

Sustainability features prominently in our outreach programmes designed to support science learning for young people at school. We are developing additional opportunities for researchers to work with pupils in our on-campus outreach spaces (at the Wohl Reach Out Lab at the South Kensington Campus and the Dangoor

Reach Out Makerspace at the White City Campus) and are providing activities for young people to engage with the College's sustainability research.

Our two-way engagement practice is designed to empower participants



Maker Challenge Programme participants at The Invention Rooms, White City Campus.

and enhance our research. For example, our Maker Challenge programmes at The Invention Rooms in White City work with school-aged participants to develop creative ideas to solve real-world problems, most of which are linked to sustainability, climate change and waste. We have worked intensively with nearly 500 young people, while more than 2,500 people have taken part in events and taster sessions. We will embed more of our research into these programmes to provide further opportunities for discourse with local young people, their families and teachers.

### Global engagement

The United Nations' 2030 Agenda for Sustainable Development is one of the

most ambitious and important global agreements in recent history. Universities, with their broad remit around the creation and dissemination of knowledge and their unique position within society, are key actors in the achievement of the Sustainable Development Goals (SDGs). As a world leading STEM institution, we recognise our urgent and critical role in accelerating society towards a resilient, sustainable future and we believe that the College has an important role to play in supporting the SDG agenda.

The recently established Global Development Hub showcases Imperial's global impact on sustainable development and the SDGs.

### The Global Development Hub offers:

- a community-building network to support new multidisciplinary and cross-sectoral research partnerships focused on global development challenges, bringing together academia, government, policy makers, NGOs, civil society and industry;
- a platform to support education and student experience, linking to and developing programmes that instil in our students a passion for sustainable development, and the skills and thinking needed to rise to the challenge of the SDGs and their legacy;
- a series of SDG-focused access points to the research and innovation ecosystem at Imperial, covering dozens of research centres of excellence and profiling the mission-driven startups, SMEs and industry research centres constantly emerging from our labs, hackspaces and incubators.



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