



# SUSTAINABLE DEVELOPMENT GOALS

LIVERPOOL JOHN MOORES UNIVERSITY  
REPORT 2022/2023



SUSTAINABLE  
DEVELOPMENT  
**GOALS**



## FOREWORD

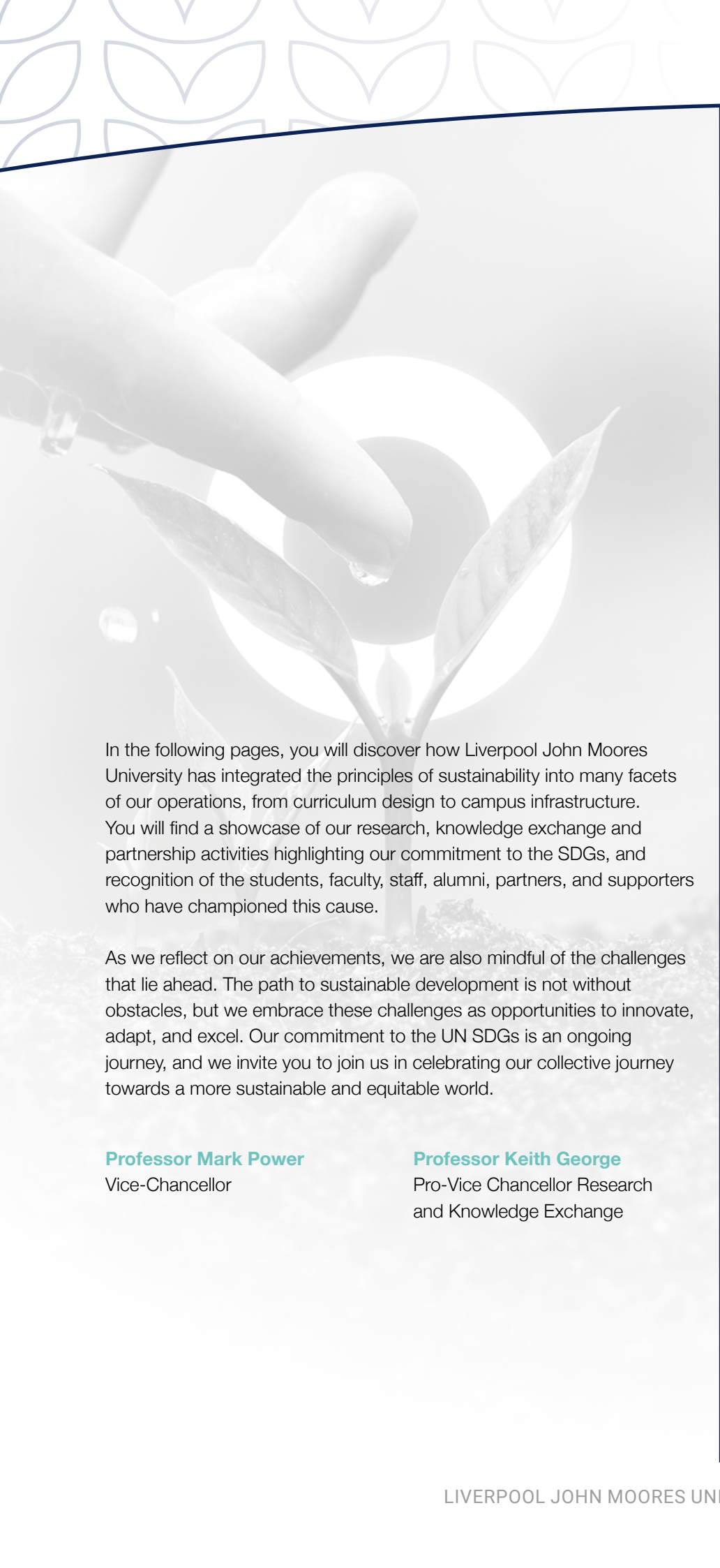


As the global challenges of our time continue to evolve, the United Nations 17 Sustainable Development Goals provide a comprehensive blueprint, of challenges and opportunities, for a better world.

Higher education institutions play a pivotal role in shaping a sustainable future for all and at Liverpool John Moores University, we are committed to supporting these important goals and driving change at a local, national and global level.

As an inclusive, civic university we are committed to transforming lives and futures through excellent education as well as delivering solutions to the challenges of the 21st century through world-class research and high impact knowledge exchange. We recognise that our mandate extends beyond the boundaries of traditional education and our commitment is to inspire curiosity and creativity, support innovation and collaboration that will lead to the implementation of solutions that transcend academia and impact the broader global community.

Our social responsibility lies deep within our values as an inclusive, courageous, and community-focused university. It is within this context that we declared a climate emergency and have launched our Climate Action Plan setting out our commitment to becoming net zero for carbon emissions by 2035. We are integrating education for sustainable development in both research and academic programmes, and we are striving to operate in the most sustainable and environmentally responsible way possible.



In the following pages, you will discover how Liverpool John Moores University has integrated the principles of sustainability into many facets of our operations, from curriculum design to campus infrastructure. You will find a showcase of our research, knowledge exchange and partnership activities highlighting our commitment to the SDGs, and recognition of the students, faculty, staff, alumni, partners, and supporters who have championed this cause.

As we reflect on our achievements, we are also mindful of the challenges that lie ahead. The path to sustainable development is not without obstacles, but we embrace these challenges as opportunities to innovate, adapt, and excel. Our commitment to the UN SDGs is an ongoing journey, and we invite you to join us in celebrating our collective journey towards a more sustainable and equitable world.

**Professor Mark Power**  
Vice-Chancellor

**Professor Keith George**  
Pro-Vice Chancellor Research  
and Knowledge Exchange

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# STATISTICS FOR YEAR 22/23

## SHOWCASING LJMU IN NUMBERS

In 2023 LJMU marked 200 years as an educational institution and as we continue to grow in size and shape we aim to operate sustainably in every aspect of our activity. We are proud of our people, of our place in the city and our ability to transform the lives of generations of students.



 **28,418**  
STUDENTS

 **UP 22%**  
OVER LAST 5 YEARS

 **3,499**  
STAFF

 **UP 21%**

**£277,270,000**  
TOTAL INCOME

 **UP 29%**

## EDUCATION AND STUDENT EXPERIENCE

LJMU supports students from over 100 nationalities in a wide variety of curriculum areas. We embrace the diversity of the student body and its implications for our activity.



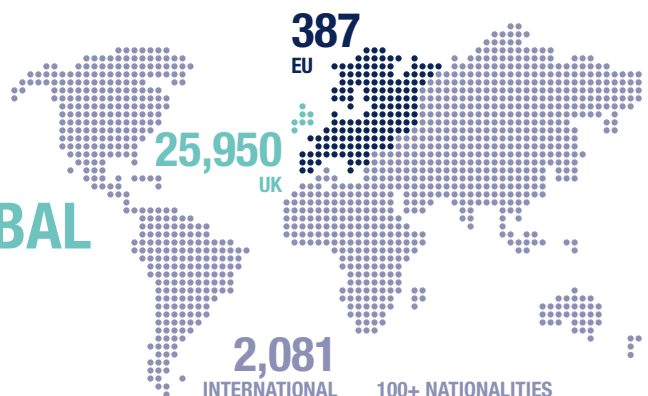
LJMU is committed to embedding the Sustainable Development Goals into the curriculum for all students.



**28,418**  
TOTAL STUDENTS  
OF WHICH 481 DOCTORAL



**GLOBAL**



## RESEARCH AND KNOWLEDGE EXCHANGE

Research and knowledge exchange activity occurs across all faculties and schools in LJMU with significant areas of world-leading excellence developed from a broad culture of research engagement across staff and students.

We support **Plan S principles** for open access publication.



LJMU has ring-fenced funds for research related to climate and sustainability initiatives, including PGR scholarships and interdisciplinary projects.

We work with a number of local stakeholders and are partners in local initiatives:

## RESEARCH

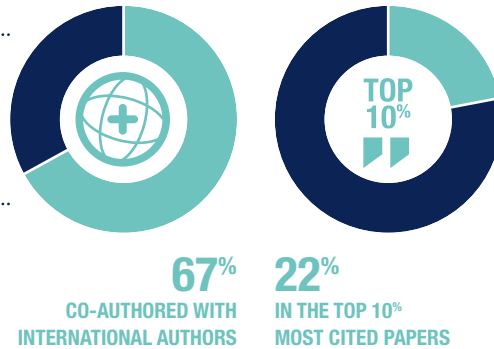
### STAFF

**UP 37%**  
OVER LAST 5 YEARS

**OUTPUTS**  
**TO 1,500**  
IN THE YEAR 2020

### INCOME

**UP 52%**  
OVER LAST 5 YEARS



## PLACE AND PARTNERHSIP

LJMU has a focus on partnership and collaboration that is borne of mutual respect and understanding that allows the co-creation of solutions. Partnerships start

locally and spread out around the globe. Our work is socially conscious aimed at multiple UN SDG and the development of transformational change.

**sciontec**

## ENGAGE

### SCHOOLS

**250 SCHOOLS** PRIMARY & SECONDARY  
**1,000 ACTIVITIES**  
**70,000 PUPILS**

### SMEs

**787 SMEs** SINCE 2016  
**£197m GVA**  
**3,087 NEW JOBS**

LJMU contributes its expertise to a range of initiatives to help local partners and the Liverpool City Region to move towards a greener, safer and more inclusive place.



# METHODOLOGY

This section outlines the methodology adopted in the analysis and categorisation of information for the purpose of this report. Primary data sources for this analysis have been sources from schools and departments across Liverpool John Moores University (LJMU), representing a breadth of diverse achievements across our institution.

**The process of analysis was structured into the following key steps:**



## DATA SOURCES

Information was compiled from sources across LJMU, this included a range of documents, reports, press releases, statistics and other relevant materials primarily covering the academic year 2022/2023.

Quantitative data was sourced from various channels including HESA, student data maintained by the university and data obtained from our academics. This quantitative data is presented in our Key Statistics pages and in the Key Statistics sections of each Sustainable Development Goal (SDG) pages.

## THEMATIC ANALYSIS

Sources were systematically categorised based on the United Nations SDGs and each piece of information was assessed to determine its alignment with each goal. Sources were also reviewed for their alignment with LJMU's strategic pillars and objectives. This approach facilitated a comprehensive assessment of LJMU's wide ranging sustainability efforts.

## TIMEFRAME

For contextual clarity, examples and data in this report primarily pertain to the academic year 2022/2023. However, where data from other years has been included this is highlighted clearly in the appropriate sections of the report.



## SUSTAINABILITY TARGETS

### EDUCATION AND STUDENT EXPERIENCE

- Enhance skills of staff and students via a carbon awareness programme.
- To continue provision of free, mains-fed drinking water for LJMU staff/students.

### RESEARCH AND KNOWLEDGE EXCHANGE

- Support specific research projects in relation to sustainability and climate change.

### PLACE AND PARTNERSHIP

- Develop the Natural Capital Hub to support local, regional and national institutions and businesses realise their natural capital potential.
- Support the development of a greener, more sustainable Liverpool City Region as part of our Civic Engagement Strategy Place and Community programme.
- Reduce number of staff/student single-passenger car commute journeys and increase number of staff/students taking up active or more sustainable travel (e.g. walking, cycling, public transport, car sharing).

### ENERGY AND WASTE MANAGEMENT

- Reduce the amount of waste generated, increase the recycling rate and maintain 0% waste to landfill.
- Monitor and control water consumption to maintain a steady consumption rate.
- Reduce CO<sub>2</sub> energy emissions year on year.
- No increases to our chemical/ trade effluent discharges to sewer despite increased student numbers.
- Source all electricity via renewable sources.
- Reduce CO<sub>2</sub> emissions associated with the University vehicle fleet.

### CAMPUS MANAGEMENT

- To achieve EcoCampus Silver accreditation by August 2024.
- Monitor and improve levels of biodiversity across our premises and grounds.
- Deliver a BREEAM 'outstanding' rating for all new buildings by 2025.



### OUR MAIN TARGET AND GOALS

- As a university we have the overall target to be net zero carbon by 2035 in relation to our Scope 1 and Scope 2 emissions.

# NO POVERTY

ERADICATING EXTREME POVERTY FOR ALL

1 NO POVERTY



Nearly half of the world's population lives in poverty, with a lack of food and clean water unfortunately killing thousands of people every day. Eradicating poverty will ensure that everyone will have the chance to live a productive and fulfilling life.



We are committed to ensuring that nobody should suffer from the effects of poverty. That's why we're supporting our students with the cost of living crisis, offering safe and warm spaces on campus. This sentiment is built into our Access and Participation Plan which aims to improve equality of opportunity for underrepresented groups to access, succeed in and progress from higher education and avoid poverty.

*“LJMU is deeply committed to ensuring that the benefits of a university education are accessible to everyone with academic ability, irrespective of their social or economic background. LJMU will continue to invest in students who live in areas with low higher education participation, lower household income or are from lower socioeconomic status groups.”*

## EDUCATION AND STUDENT EXPERIENCE

### Supporting students with the cost of living

Across the 2022/2023 academic year, we've committed over £2 million to students facing financial hardship during the cost-of-living crisis<sup>1</sup>.

This financial support was provided to almost 3,000 students with the amount of support averaging around £700 per application<sup>2</sup>.

Our Money Advice Team also provides impartial advice and assistance to students such as support to cover food costs and other important bills like energy through Energy Cost Assistance.

## RESEARCH AND KNOWLEDGE EXCHANGE

### Supporting Open-Source Construction in Uganda

LJMU is supporting Ugandan slum dwellers to self-build their own homes with composting toilets to improve their access to clean, safe housing and sanitation.

Local residents of the Mutundwe Informal Settlement, Kampala, will be involved in the research using WikiHouse construction technology to design and then build homes alongside Makerere University student volunteers.

This project also aims to self-empower slum dwellers by increasing building skills, and to enable knowledge exchange between local residents and policymakers.

**LJMU Access and Participation Plan**





Residents join our construction workshops to support local housing developments.

We conducted two capacity building workshops in Kampala and Jinja to introduce low skill modern method of construction and create an action plan for housing development. These workshops were well participated both young and women as much as the men.

### Leading the international FINCARE project

Our researchers are collaborating with colleagues from the UK, Italy and Romania to develop guidance for financial literacy and inclusion.

This work forms the Financial Literacy for Social Inclusion project (FINCARE), a knowledge exchange and research programme in credit union governance and financial education.

LJMU supported a symposium for British and Romanian credit unions focusing on co-operative banks. Our researchers also developed two key reports that have been made available to all credit unions<sup>3</sup>.

One of these reports, the Financial Education Handbook supports readers with basic financial education, helps them to manage family finances and make informed financial decisions to avoid issues such as debt and social exclusion.

The final recommendations published by the FINCARE team have been included in UK and Welsh government policy.

### PLACE AND PARTNERSHIP

We're reducing 'furniture poverty' by donating over 3,000 items of recycled furniture and other equipment to hundreds of local groups, including schools, charities and grassroots organisations<sup>4</sup>.

The furniture, which was sourced from our recently vacated I.M.Marsh campus, has been donated to Calderstones's, St Anne's and St Mary's Primary Schools, the Young Persons Advisory Service, and women's support service Blackburne House.

This work was supported through a collaboration with Bulky Bob's for Business, a part of the Furniture Resource Centre, and Johnson's Removal who helped the coordinate the delivery and collection of items to over 750 organisations.

The furniture and equipment recycling initiative was so popular that all items were reserved within a week.

It is hoped that the initiative will run again in the future following the same model.



In collaboration with Bulky Bob's for Business, we've donated over 3,000 items of furniture to local groups.

### KEY STATISTICS

- 1 **£2<sup>M</sup>** We've committed over £2 million to students facing financial hardship during the cost of living crisis.
- 2 **3,000 SUPPORTED** In 2022/23, LJMU supported almost 3,000 students with financial support averaging around £700 per application.
- 3 **2 REPORTS** We developed two reports that have been made available to credit unions including a Financial Education Handbook.
- 4 **3,000 ITEMS** Over 3,000 items of recycled furniture and other equipment to hundreds of local groups.

# ZERO HUNGER

END HUNGER AND ACHIEVE FOOD SECURITY

2 ZERO HUNGER



Hunger continues to be a leading cause of death in the world. However, promoting sustainable approaches to resource and land management, supporting fair distribution systems and developing innovative technologies can all help to sustain the world's growing population.



Irrigated rice fields in Southeast Asia  
Photo: Jonay Jovani.

We're tackling hunger through a range of community initiatives spanning on and off campus at LJMU. We're driving high-tech and sustainable food production through our work with Farm Urban and giving back to the community through contributions to the Fans Supporting Foodbanks initiative. In Southeast Asia, we are working to develop nature-based solutions to promote food security hungry.

*"The Cook Together initiative is part of LJMU and John Moore's Student Union (JMSU) support with the rising cost of living. LJMU commits £1 million a year to support students facing financial hardship. This year, we are committing an additional £600,000 to help during the cost of living crisis."*

**LJMU Cook Together Initiative<sup>1</sup>**

## EDUCATION AND STUDENT EXPERIENCE

### Promoting healthy eating on a budget

The LJMU Cook Together initiative helps students to eat healthy and nutritious meals that aren't too costly or challenging to create. We're supporting students by providing them with healthy and simple recipe ideas on our LJMU Cook Together webpage and encouraging reduced food waste through batch cooking.

Our recipes have been carefully curated to represent the broad range of cultures on campus and in our city, including healthy dishes such as spinach and sweet potato dhal, beef tacos and chicken pad thai.

## RESEARCH AND KNOWLEDGE EXCHANGE

### Developing nature-based solutions for food security

Southeast Asia is highly susceptible to both current and future climate change impacts. This includes risks and hazards such as rising sea levels, increased droughts, longer and more intense storms and heatwaves which could have significant impacts on food security in the region.

As part of the COP 26 universities network, LJMU researchers contributed to research which looked at opportunities for nature-based solutions for climate change mitigation in the ASEAN Region (Brunei Darussalam, Burma, Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand, and Vietnam).



Farm Urban set out to create a city-based farming space supported by our Low Carbon Eco-Innovatory (LCEI).

*“University collaborations allowed us to determine the appropriate technology, crops and business model, this significantly de-risked the early stages of our businesses development and laid a solid foundation for our growth and success to date.”*

Dr Paul Myers, Managing Director, Farm Urban

The LJMU research specifically focussed on aspects of agricultural management, such as techniques to reduce nitrous oxide emissions from crop production, by using slow-release fertilisers and the use of nitrogen fixing plants.

The research also made recommendations for irrigated rice and how it can provide a range of ecosystem services similar to natural wetlands, such as drought regulation and biodiversity conservation. Increasing the amount of green carbon in the ASEAN region can reduce carbon emissions by 1.35 gigatonnes (Gt) of CO<sub>2</sub> per year<sup>2</sup>.

## PLACE AND PARTNERSHIP

### Fighting hunger through Fans Supporting Foodbanks

Founded in 2015, Fans Supporting Foodbanks is a joint initiative between rival Liverpool F.C. and Everton F.C. supporters, aiming to tackle food poverty in the city of Liverpool.

The important work is funded by The Everton in the Community Project which has helped to develop a growing network of fan-driven foodbanks in Liverpool and across the United Kingdom.

LJMU has collected donations that have supported 75,000 people in Liverpool by providing them with access to food<sup>3</sup>.

### Creating spaces for urban farming in the city centre

A partnership between our Low Carbon Eco-Innovatory (LCEI) and Farm Urban, a sustainable urban farming solution, is bringing people together to learn about our food systems.

The LCEI provided a PhD student on a 3-year placement to work on the Farm Urban project in its early stages and now, Farm Urban operates as an underground vertical farm in a basement in Liverpool’s Baltic Triangle.

The sustainable social enterprise provides fresh leafy greens through their Greens for Good initiative to schools, businesses and residents across the city of Liverpool and install edible green walls within local communities.

**Funding from Liverpool City Region’s Community Environment Fund is supporting our students’ union to develop three urban growing sites across Liverpool.**

**As part of our re-wetting project, we’ve planted 85,000 plugs of celery across our urban growing sites<sup>4</sup>.**

## KEY STATISTICS

- 1 **£1.6<sup>M</sup>** Funding committed to support LJMU students facing hardship and cost of living.
- 2 **1.35<sup>GT</sup> CO<sub>2</sub>** Increasing the amount of green carbon in the ASEAN region can reduce carbon emissions by 1.35 Gt of CO<sub>2</sub> per year.
- 3 **75,000 PEOPLE** Our Fans Supporting Foodbanks project provided 75,000 people with access food.
- 4 **85,000 PLANTS** As part of our re-wetting project, we’ve planted 85,000 plugs of celery across our urban growing sites.



# GOOD HEALTH AND WELLBEING

ENSURE HEALTHY LIVES AND WELLBEING

## 3 GOOD HEALTH AND WELL-BEING



Ensuring healthy lives and promoting wellbeing at all ages is essential to sustainable development. A critical goal is to promote healthy lifestyles, encourage preventative measures for health issues and ensure the provision of modern, efficient healthcare for everyone.



We work to ensure the optimal health and wellbeing across multiple societal groups, from the youngest to oldest members of society, to elite athletes and individuals with significant health and wellbeing challenges. We promote healthy lives and physical, social and mental wellbeing across Liverpool. We are also committed to tackling global health challenges in low-resourced settings in the Global South.

*“At LJMU, we are immensely proud to be a founding partner of the Global Pandemic Institute. We have a rich history of working together with all other partners and stakeholders to solve the problems facing our society. Most recently, this has been a global pandemic, and we know there are more to come.”*

**Professor Raphaela Kane, Pro-Vice Chancellor, Faculty of Health**

## EDUCATION AND STUDENT EXPERIENCE

### Teaching adults and children to swallow medication

LJMU researchers, along with Newcastle Children's Hospital, Newcastle University and Alder Hey Children's Hospital, have been working together to deliver Pill School training.

Pill School sees the delivery of online and in person training delivered to patients by qualified and student healthcare professionals across the UK.

This training is provided because it is assumed that adults can swallow medication in pill form, while children can't. In reality, swallowing pills is a skill that can be taught over three years.

The training has been delivered to Alder Hey Cystic Fibrosis Clinic, Bristol and Edinburgh children's hospitals, as well as universities in the UK, Jordan and Malaysia.

In practice, this training has the potential to widen access to medication options, enhance patient medication adherence, and in many cases save NHS Trusts significant costs in medication waste.

At LJMU, Pill School training has been adopted as an integral part of our undergraduate and Master's degrees in Pharmacy programmes.

In September 2024, the training is due to be implemented as a key part of the curriculum at Brighton School of Pharmacy<sup>1</sup>.



Supermarket trolleys with sensors fitted to the handles can help spot a hidden heart-rhythm condition.

*“Atrial Fibrillation hasn’t really been a priority in the past, certainly not in the community. We’re moving from a treatment style to a preventative style, looking at the community and preventing anything before it causes any ill health to that patient or extra load on the NHS. I think it really contributes significantly to the wellbeing of the population.”*

Community pharmacist

## RESEARCH AND KNOWLEDGE EXCHANGE

### Using supermarket trolleys to cut the risk of stroke

Supermarket shoppers across major grocery stores in Liverpool were involved in research to identify and then treat hidden heart rhythm conditions.

Data collection occurred while members of the community were shopping at Sainsbury’s and Lloyds Pharmacy stores using modified shopping trolleys.

Using supermarket trolleys fitted with special sensors, heart rhythm abnormalities were detected while shoppers gripped the trolley handles.

As a result of this study, a total of 39 participants had a new diagnosis of atrial fibrillation, a hidden heart condition<sup>2</sup> that can increase the risk of strokes and were referred to see a cardiologist for further advice.

This novel work featured on BBC News, in The Guardian and was presented by our researchers at international cardiology conferences.

## PLACE AND PARTNERSHIP

### Tackling the challenges of living well with dementia

Our Centre for Collaborative Innovation in Dementia is a European accredited living-lab working with local citizens, industry, academics and healthcare providers to place people living with dementia at the heart of approaches to living well with dementia.

### Promoting physical activity through Global Active Cities

LJMU worked in tandem with the city council to launch and evaluate the Liverpool Active City programme that was piloted in 10 cities worldwide<sup>4</sup>.

This successful model was adopted, and LJMU staff acted as expert advisors, on an international initiative to increase physical activity within urban settings: the Global Active Cities (GAC) movement.

Liverpool was one of the first cities to be awarded the GAC title for putting citizens health as well as physical, mental, and social wellbeing at the heart of the city’s future.



Our Centre for Collaborative Innovation in Dementia is part of the European Network of Living Labs through which we collaborate with partners in 6 countries<sup>3</sup>.

## KEY STATISTICS

- 1 **2024** Pill School training developed by LJMU will become part of the curriculum at Brighton School of Pharmacy.
- 2 **39 SHOPPERS** 39 shoppers using our modified trolleys were diagnosed with atrial fibrillation.
- 3 **6 NATIONS** We’re collaborating with partners in the UK, Netherlands, Belgium, Germany, Hungary and Portugal
- 4 **10 CITIES** 10 pilot cities were involved in the Global Active Cities movement including cities in Argentina, Botswana, Finland and Turkey.

# QUALITY EDUCATION

INCLUSIVE AND EQUITABLE QUALITY EDUCATION

4 QUALITY EDUCATION



Education at all stages of life opens up opportunities, making it possible for everyone to contribute to society. Education benefits every human being and lifelong learning opportunities should be available to all in an inclusive and equitable way.

## UNICAF<sup>®</sup>

LJMU has a dual focus on quality of education through curriculum delivered in Liverpool and via our external engagement activities. We have committed to feature sustainable development as part of our taught courses, and we're making efforts to decolonise the curriculum. We're committed to our local community, delivering training for secondary school students in climate, chemistry and astronomy.

Education for Sustainable Development is a feature of all LJMU taught courses, addressing social, environment and economic concerns.

These courses will increase awareness of equality and diversity, discrimination and unconscious bias, and encourage students to champion diversity proactively and with confidence.

### EDUCATION AND STUDENT EXPERIENCE

#### Supporting African students with Unicaf

A collaboration between LJMU and international scholarship programme, Unicaf, offers a range of courses to students domiciled in Africa.

The Unicaf programme supports students by giving them access to online programmes offered by LJMU at a much lower cost.

In doing so, the partnership makes education affordable for students in under-served regions, allowing them to achieve internationally recognised qualifications and prepare them for employment within a global marketplace.

#### Decolonising the curriculum

LJMU's Decolonising the Curriculum Working Group is committed to reduce the attainment gap for Black, Asian, and Minority Ethnic students. This work echoes broader efforts across the University to decolonise curriculum content, teaching, learning and assessment.

### RESEARCH AND KNOWLEDGE EXCHANGE

#### Supporting students to beat exam pressures

Research undertaken at LJMU has identified how factors and circumstances can come together to determine exam anxiety for students in preparation for their GCSEs.





LJMU'S Outdoor Learning Zone promotes outdoor education to children.

*“Our Natural Curriculum is an innovative way of incorporating outdoor education at the heart of our approach. Children benefit in so many ways from learning in a natural environment and our student teachers develop a range of new creative skills.”*

Dr Avril Rowley, School of Education

This research found that levels of exam anxiety can affect the emotional wellbeing of students and result in lower GCSE achievement. In particular, females are twice as likely to be affected by this anxiety than males.

As a result of the research, we developed several resources to support students in preparing for their GCSE exams. These included a BBC Mindset Bitesize campaign, a Department for Education endorsed resource pack to support students, and group based cognitive-behavioural interventions for students. Our ‘coping with exam pressure’ guide was downloaded 197,000 times<sup>1</sup>.

## PLACE AND PARTNERSHIP

### Climate and outdoor education in teacher training

At LJMU, climate and the great outdoors is incorporated into teacher training and education in a variety of ways. For example, our Forest Schools facilitate climate and sustainability education across infant schools and are built into teacher training courses.

Alongside this, our Outdoor Learning Zone is used by trainee teachers and school children from the Liverpool region to deliver LJMU’s Natural Curriculum which aims to promote outdoor education and its benefits to support children’s development and wellbeing.

### Bringing STEM to life for students

Our National Schools’ Observatory (NSO) supports 2,500 schools and colleges<sup>2</sup> by providing free access to Liverpool Telescope images from space.

In 2021, we committed to develop a new £30million telescope in the Canary Islands<sup>3</sup> which is four times more sensitive and ten times faster than the previous record holder. The Telescope will be the world’s largest robotic telescope of its kind and data will feed into the NSO.

In other activity, our Absolute Chemistry project welcomed 150 high school students<sup>4</sup> from six Merseyside schools to LJMU’s science labs where they carried out hands-on practical experiments with the support of LJMU staff and students.



Students take part in our Absolute Chemistry project.

## KEY STATISTICS

- 1 **197,000** DOWNLOADS Our ‘coping with exam pressure – a guide for students’ received 197,000 downloads.
- 2 **2,500** SCHOOLS 2,500 schools and colleges are part of the National Schools Observatory whose website has 15,000 active users.
- 3 **£30M** TELESCOPE LJMU is building a £30 million telescope to feed data to the National Schools Observatory.
- 4 **150** STUDENTS 150 students from six Merseyside schools were welcomed to take part in the Absolute Chemistry project.

# GENDER EQUALITY

EMPOWER ALL WOMEN AND GIRLS

5 GENDER EQUALITY



Achieving gender equality involves ending discrimination, exploitation and violence against women and girls. Supporting balance in gender roles and providing equal access to opportunities can also help to achieve economic prosperity for all people.



We are supporting all students to have the best experience possible at LJMU, regardless of their gender. That's why we're the first UK university to provide free period products across campus, and we've set up Menopause Cafés for staff. We're also championing gender equality in the wider community, reflected through our involvement in the This Girl Can campaign with Sport England.

LJMU is celebrating its 200 year anniversary in 2023. Over the years, several influential LJMU women have contributed to the education of women and girls.

For example, our I.M. Marsh College of Physical Training is named after Irene Mabel Marsh who started a revolution in physical education and demonstrated that girls should receive instruction in PE.

## EDUCATION AND STUDENT EXPERIENCE

### Leading the way with campus-wide free period products

The #LJMUFreePeriod campaign is the first comprehensive, unlimited scheme at a university in England to provide free menstrual products across campus.

The ground-breaking Period Poverty Campaign follows research undertaken by LJMU's Students' Union, which found that a number of students reported either not coming into university or to leaving due to lack of access to menstrual products.

From 2019, free menstrual products have been placed in all 221 female, gender neutral and accessible toilets across our campuses<sup>1</sup>.

### Providing menopause support through cafes and policy

Over a period of 18 months LJMU worked with Rachel Weiss, the founder of Menopause Café, to create virtual workplace cafés where members of the LJMU community can meet to eat cake, drink tea and discuss menopause.

LJMU cafés offer a safe and accessible space for people to discuss menopause in a social setting. Currently the cafés are open to all members of staff, regardless of age and gender, and we hope to expand this to students.

### Enabling a more inclusive Liverpool City Region

LJMU led the One Day project which highlighted the need for more evidence-based research broken down by gender and race.



LJMU's I Will if You Will campaign influenced the national This Girl Can campaign which encourages women and girls to engage in sport. > Group of women taking part in sport activity

*"I Will if You Will has had a major local impact and the lessons learned so far have allowed us to better understand how women and girls take part in sport. It's also helped shape our new national 'This Girl Can' campaign. With two million more men than women playing regular sport, I Will if You Will can help us close the gender gap."*

**Phil Smith, The Sport England Director of Sport highlighting the impact of IWIIYW both locally and nationally.**

This work led to the development of four Equality Panels covering disability, race, gender, and sexuality to tackle discrimination in the Liverpool City region. LJMU also influenced the Combined Authority's Equality Strategy, outlining 40 actions to support diversity across Liverpool<sup>2</sup>.

## RESEARCH AND KNOWLEDGE EXCHANGE

### Supporting Nepalese females with menstrual health research

LJMU evaluated the impact of the use of reusable sanitary pads on improving wellbeing for rural Nepalese women and girls.

Our research helped to identify specific areas to target to improve outcomes, such as improving conversations within families and producing reusable pads more locally.

The outcomes of this work will help to reduce the impact of negative outcomes for women and girls in Nepal such as reduced school attendance and poor basic menstrual hygiene.

## PLACE AND PARTNERSHIP

### Improving female participation in sport through This Girl Can

The national Sport England 'This Girl Can' campaign originated from insights generated by LJMU lecturers during a pilot study of the 'I Will if You Will' (IWIIYW) campaign. The IWIIYW campaign got more than 6,500 women and girls across Bury moving when it first started in 2013<sup>3</sup>.

Positive outcomes of IWIIYW included improvements in women's mental wellbeing and sports participation. Other insights led to recommendations which fed into the development of the well-developed Sport England This Girl Can campaign.

We've continued our efforts to increase female participation in sport by engaging in the Royal Society's British Science Week. We have invited year 9 students from local schools to visit our sports labs and hosted the Women in Sport and Exercise Academic Network (WiSEAN) Conference at LJMU.



**Institutional Bronze Award<sup>4</sup>.**

## KEY STATISTICS

- 1 **221 BATHROOMS** We have placed free menstrual products in all 221 bathrooms across campus.
- 2 **40 ACTIONS** The Equality Strategy will protect those with protected characteristics and low socio-economic status from discrimination.
- 3 **6,500 WOMEN** Over 6,500 women participated in the I Will if You Will campaign which led to Sport England developing 'This Girl Can'.
- 4 **2014 AWARD** LJMU was awarded the Athena SWAN Bronze award in 2014. The Charter aims to transform gender equality within higher education and research.



# CLEAN WATER AND SANITATION

ACCESS TO SAFE WATER AND SANITATION

## 6 CLEAN WATER AND SANITATION



Although most of the earth is covered in water, only 1% is fit for human consumption. With a growing population and increased industrial activity, it is essential that we make efforts to protect our water supply and avoid excessive use.



Children in the Philippines adapt to flooding.

At LJMU, we're making efforts to address our water usage by installing efficient water dispensers, harvesting rainwater and using low-flush toilets in our buildings across campuses. Locally, we are promoting sustainable energy on Hilbre Island and internationally we are proud to champion the voices of islanders in the Philippines through documentaries shared at the United Nations World Ocean's Day.

*"The films, in particular, played a critical role in emphasising the gravity and urgency of the problem in the island communities. Through powerful images and real stories told by the residents in their own words, the films were able to move the Municipal Council enough to prioritise the needs of the island communities despite being a minority."*

**Racing the King Tide project  
Liverpool Business School**

## EDUCATION AND STUDENT EXPERIENCE

### Managing water consumption on campus

At LJMU, we're committed to carefully managing our water consumption.

That's why we are carefully monitoring 100% of our mains drinking water supplies across all of our buildings<sup>1</sup>.

We've implemented several measures to preserve water such as low-flush toilets and rainwater harvesting systems. Plus, our free-to-use water dispensers allow all LJMU students to reduce the amount of single-use plastic bottles and harmful scope 3 carbon emissions<sup>2</sup>.

## RESEARCH AND KNOWLEDGE EXCHANGE

### Helping islanders adapt to sea-level rise

In October 2013, the province of Bohol in the Philippines was hit by a powerful 7.2 magnitude earthquake, which led to land subsidence in several of its smaller island communities. As a consequence, the islands of Batasan, Pangapasan, Ubay, and Bilangbilangan within the Municipality of Tubigon now face partial or complete flooding even during ordinary spring tides.

'Racing the King Tide' is an internationally recognised research initiative that innovatively redefines our approach towards adapting to rising sea levels. This ongoing project is a collaborative effort



Members of the project team on a visit to Hilbre Island.

A collaboration between the Low-Carbon Eco Innovatory (LCEI), LJMU, The British Art and Design Association and Friends of Hilbre Island<sup>4</sup> is working on a refurbishment of buildings on Hilbre Island that will see the use of renewable power and sustainable water-use for the site. Currently, the site is only accessible in low-tides.

led by LJMU, The University of Tokyo, Waseda University, and The Manila Observatory, in conjunction with Hatch, the Philippine Local Government Unit, and the resilient inhabitants of Tubigon.

By creating documentary films, reflecting the stories of islanders in the Philippines, our researchers have supported national policy changes to protect the community from the effects of climate change.

For example, the United Nations Conference on Trade and Development highlighted the documentaries created as part of the Racing the King Tide project as important resources to learn about climate change and the films were shown at both COP26 and the UN World Oceans Day<sup>3</sup>.

## PLACE AND PARTNERSHIP

### Creating a sustainable research centre

LCEI, together with LJMU, The British Art and Design Association and Friends of Hilbre Island, is creating a research cluster focusing on Hilbre Island to renovate existing neglected buildings on the site as a sustainable research centre.

Hilbre, Wirral, is only accessible at low tide and has no mains power, fresh water or wastewater facilities. The island is a Site of Special Scientific Interest, an important site for migratory birds and a protected nature reserve.

While Hilbre already attracts students and researchers in a range of subjects all year round, from marine biology and astrophysics to creative writing and art, this project will reimagine the neglected buildings on the site to create a space that is a more comfortable retreat from the unpredictable weather.

The Hilbre project group is currently investigating options for renewable power and water, while ensuring as little disruption to the site and the buildings as possible. The group is working alongside Wirral Borough Council and Friends of Hilbre, consulting widely and open to ideas and discussion. It's an ambitious task, but if successful the island could become a leading test case for off-grid, low carbon projects of this kind.



We exhibited the 360 virtual reality films at the University of the Philippines and other local communities.

## KEY STATISTICS

- 1 **100% MONITORED** All supplies of mains drinking water to our buildings are metered and monitored.
- 2 **SCOPE 3 CARBON** Water dispensers on campus reduce the amount of single-use plastic and scope 3 carbon emissions.
- 3 **COP<sup>26</sup> CONFERENCE** Racing the King Tide were shown at the COP26 Climate Change Conference.
- 4 **4 ORGANISATIONS** Four organisations including LJMU are working together to regenerate buildings on Hilbre Island.

# AFFORDABLE CLEAN ENERGY

AFFORDABLE, RELIABLE, SUSTAINABLE ENERGY

## 7 AFFORDABLE AND CLEAN ENERGY



Our current reliance on fossil fuels is unsustainable and harmful to the planet. It is becoming increasingly urgent that we implement innovative and sustainable energy solutions as fast as possible in order to counter the impacts of climate change.



We are making strides to investigate affordable and clean energy solutions, and this is reflected across our teaching, research and knowledge exchange activities. We have forged partnerships with industry to test and develop new technologies such as biogas production, we are exploring green technologies through our exemplar houses, and we are working in Japan and Malaysia to ensure electric vehicles (EVs) remain low-carbon cars.

*“The departure of 165,000 European workers combined with an ageing workforce, and the pandemic has created a perfect storm for future capacity in the industry.”*

*This collaboration between industry, higher and further education is now vital if we are to avoid a skills time-bomb in UK construction.”*

**Professor Mike Riley, Director of Civil Engineering and Built Environment.**

## EDUCATION AND STUDENT EXPERIENCE

### Supporting the UK construction sector

Alongside industry partners, LJMU recently unveiled a new £370,000 Construction Skills and Knowledge Hub<sup>1</sup> that aims to counter the skills shortage in the UK construction sector.

The Hub will provide a space for industry collaboration, facilitating initiatives for employers, professional bodies, and learners on degree apprenticeships and other non-traditional degree routes.

Construction adopting low-carbon and retrofitting principles will be a core focus of the Hub, contributing to sustainable and clean building.

## RESEARCH AND KNOWLEDGE EXCHANGE

### Extending electric vehicle lifespans with a new solder

While the transition to EVs represents a step towards clean energy usage, more than half of EV emissions occur during the manufacturing process.

Using nanotechnology and micro-alloying, LJMU researchers and partners in Japan and Malaysia, have created a new solder which experiences less cracking over the products lifetime, therefore reducing the need for additional manufacturing.

In cases where manufacturing does take place, the new solder critically reduces the energy and materials required.





Our LJMU exemplar houses opened in 2016.

Leading LJMU construction industry partner Zenova Plc has seen its share price jump after unveiling a paint that can improve EPC ratings on homes and businesses. The application of insulating decoration – called Zenova IP – which can cut utility bills and energy consumption follows a successful Accelerated Knowledge Transfer Project with LJMU. The paint was applied to our 1920s exemplar house and results showed a reduction in heat energy consumption by over 25% which has the potential to lower fuel bills.<sup>3</sup>

### Producing biogas from pig slurry

Research focusing on enhancing pig slurry waste streams has led to a patent pending microwave treatment system, which improves biogas production from pig slurry.

This research has been achieved through the Biowave™ project which began in 2016 and received over €1 million in European funding.

In 2018, the technology was implemented and tested at a farm in Ireland. In 2018 alone, almost 70,000m<sup>3</sup> of renewable biogas was produced on site and used for heating<sup>2</sup>.

The microwave system also led to a reduction in CO<sub>2</sub> equivalent output by up to 390 tonnes, representing a 37% decrease in output per year and the plant scale installation increased biogas yield by 40%.

As production of biogas from pig slurry waste is a sustainable energy source, it is hoped that this method of biogas production can help Europe to meet its 27% renewable energy targets by 2030.

## PLACE AND PARTNERSHIP

### Testing new domestic technologies in our Exemplar houses

Our LJMU Exemplar houses, opened in 2016 and are representative of the three main types of domestic housing stock. These homes allow new technologies to be tested under realistic test-bed conditions<sup>4</sup>.

In partnership with the Building Research Establishment, we launched the first purpose built, multi-unit housing test facility in the North of the UK, with the three houses based on 1920s, 1970s and contemporary design and construction.

Exemplar houses support testing of emerging green technology and building methods, providing information to support options for lowering emissions across UK housing.

The houses also offer R&D opportunities for businesses developing new products to obtain data on product performance, enabling product development and scientific evidence to back up marketing of products.



Visitors tour our exemplar home 'labs' at Byrom Street.

## KEY STATISTICS

- 1 **£370<sup>K</sup>** Our Construction Skills and Knowledge Hub aims to counter the skills shortage in the UK construction sector.
- 2 **70,000 M<sup>3</sup> BIOGAS** Almost 70,000m<sup>3</sup> of renewable biogas was produced using pig slurry and used for heating.
- 3 **25% REDUCTION** Applying insulated paint to our exemplar houses produced a 25% reduction in heat loss.
- 4 **3 HOUSES** We have three exemplar houses allowing new technologies to be tested under realistic test-bed conditions.

# DECENT WORK AND ECONOMIC GROWTH

PROMOTE SUSTAINED ECONOMIC GROWTH

## 8 DECENT WORK AND ECONOMIC GROWTH



Economic growth has a range of benefits for the whole global community. We must make financial progress while ensuring the environment is not harmed, labour rights are protected and modern slavery and child abuse is ended. Nobody should be excluded from the benefits of innovation.



LJMU Accounting Clinic students.

LJMU is working to promote sustainable, and equitable, economic growth. Through our work with businesses across the region, we're supporting innovation to create low carbon goods, processes and services with international reach. On campus, our Accounting, Business and Law Clinics are providing students with valuable work experience while supporting the productivity of the wider community.

*“The Business Clinic is set to grow further next year as the number of students involved in the clinic is set to increase by at least 30%. We are proud to say that over the next two years the Business Clinic will be embedded into all undergraduate and postgraduate provision across the School of Business and Management.”*

**Dr Track Dinning, Liverpool Business School**

## EDUCATION AND STUDENT EXPERIENCE

### Improving employability through student clinics

Students at LJMU are improving their employability prospects and supporting organisations through the provision of Business, Accounting and Law Clinics.

The Business Clinic provides undergraduate and postgraduate students the opportunity to tackle real world problems experienced by external organisations. Approximately 34,800 hours of business consultancy were delivered for free in 2021/2022<sup>1</sup>.

Our Accounting Clinic, that first opened in 2022, also offers a pro-bono service to registered UK charities requiring annual independent examination.

These Clinics are led by final year Accounting & Finance students who are excelling on their degree programme, with work reviewed by academics.

LJMU also supports every LLB Law student, from their first year onwards, with the opportunity to gain pro bono work experience through our Legal Advice Centre.

The Legal Advice Centre prioritises supporting people and organisations that are considered to be vulnerable either socially, economically or physically.

In some cases, time spent in the Law clinics may count towards the two years of Qualifying Work Experience required to qualify as a solicitor, potentially leading to a faster route for qualification.



Tackling 3D printing for a new multipurpose seat and storage product.

*“Meeting the team at the Low Carbon Eco-Innovatory (LCEI) has moved us forward considerably... Using the 3D printing processes and technology has assisted in reducing our time to market, our costs and also ultimately our carbon output.”*

Paul Newman, Omni Design Group

In the 2021/2022 academic year, an estimated total of £1.3m worth of business and legal services were delivered through our clinics for free to communities and organisations across Liverpool<sup>2</sup>.

## RESEARCH AND KNOWLEDGE EXCHANGE

### Supporting businesses through immersive technology

Our research on human-computer interactions and immersive technology led to a collaboration with CGA Simulation, a Liverpool based virtual simulation and games development company.

This research, investigating driver anxiety levels, informed the development of a VR driving simulation game generating £117,378 for the company<sup>3</sup>.

Our work led to CGA receiving a further £500,000 to lead Innovate UK’s Artificial Learning Environments for Autonomous Driving) research project.

## PLACE AND PARTNERSHIP

### Supporting SME innovation at the Low Carbon Eco Innovatory

The Low Carbon Eco Innovatory (LCEI), a project part funded by the European Regional Development Fund, offers organisations the opportunity to identify options for low carbon development and innovation.

At LJMU, we support a range of organisations with mapping out low carbon strategies and developing bespoke action plans to increase long term profitability and drive a low carbon future.

By providing LCEI the expertise and insight of researchers and students, LJMU assists organisations at each step of their bespoke strategy. So far, we have placed 20 PhD students in SMEs through the LCEI.

To date, our LCEI has supported almost 250 SMEs, has saved more than 10,000 tonnes of carbon since its establishment<sup>4</sup> and has helped businesses to develop 120 new low carbon products.



LJMU developed a driving simulation game for games development company CGA Simulation.

## KEY STATISTICS

- 1 **34,800 HOURS** Hours of consultancy provided to organisations supported by the Business Clinic (based on 12 hours per students).
- 2 **£1.3M** Estimated value of business and legal services delivered for free to communities and organisations.
- 3 **£173K** The development of a VR driving game generated £117,378 for CGA Simulation.
- 4 **10,000 TONNES** Our LCEI has saved more than 10,000 tonnes of carbon since its establishment.



# INDUSTRY, INNOVATION AND INFRASTRUCTURE

DRIVING ECONOMIC GROWTH AND DEVELOPMENT

## 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



Investing in infrastructure and innovation is pivotal to driving economic expansion and advancement. The rise of new industries and the proliferation of information and communication technologies should be managed in a sustainable and equitable way to drive future innovation.



LCR 4.0 provides digitalisation support to SME's across the Liverpool City Region.

Investing in infrastructure and innovation is essential to driving economic growth. At LJMU, we're using innovative approaches to teach our students about new technologies while providing global citizenship skills at the same time. Our researchers have worked across multiple industry sectors, supporting sustainable innovation and industry growth across the Liverpool City Region and beyond.

*“COIL (Collaborative Online International Learning) is an effective pedagogical method of developing students’ intercultural awareness and global citizenship skills. Students learnt about the UN SDGs; it was important to link the SDGs to the learning objectives of the curriculum so that students understand why they are learning about them.”*

**Dr Alison Lui, School of Law Business School**

### EDUCATION AND STUDENT EXPERIENCE

#### Training on the ethical and legal aspects of Artificial Intelligence

Between 2020 and 2022, several successful Collaborative Online International Learning (COIL) projects have allowed LJMU students to share teaching experiences with international partners on the topic of ‘The Impact of Digital Technology in the Workplace’. This includes ethical and legal aspects of artificial intelligence (AI) in the financial sector.

Projects have taken place with five universities in Italy, India, South Africa, USA and Malaysia<sup>1</sup>. The success of these projects has led to the embedding of COIL in the curriculum of the Faculty of Business and Law to ensure all students have an international experience during their studies.

### RESEARCH AND KNOWLEDGE EXCHANGE

#### Improving maritime risk assessment

LJMU research has led to the development of a Risk Assessment Informed Decision Support Tool (RAIDS) for use in large maritime engineering systems.

RAIDS has since led to changes in regulations and public policy which have led to a number of benefits such as, improved offshore safety through reduced collisions between installations and vessels and new engineering safety training approach for high-risk industries.

RAIDS has also seen a reduction in pilot-related vessel traffic incidents and the introduction of guidelines on drug and alcohol abuse to determine if this effects company’s incident and accident rates.



LJMU Digital Demonstrator Zone – showcasing digital innovation technology.

*“The LCR 4.0 team at LJMU has been fantastic every step of the way; they clearly understood our business and the products we create and put forward a new innovative prototype that will help further prove the concept of our drainage system. Having access to the students and staff to talk about our business, our journey and bring together all that knowledge has been a perfect partnership; they have opened us up to areas and networks I thought were impossible for an SME like ours.”*

**Robert Stuart, Biopipe Products Group**

The research has had a direct quantifiable impact on both regulatory and public policy governing risk-based maritime systems operations.

For example, the Risktec Solutions training business has generated revenues of over £7.5m since 2014<sup>2</sup> and has an approximate revenue per year of £1.2 million.

## PLACE AND PARTNERSHIP

### Shaping the manufacturing industry of tomorrow

LJMU played a pivotal role as a delivery partner in the LCR 4.0 programme, a transformative initiative that supported the manufacturing sector within the Liverpool City Region via digital innovation. This project, funded by the European Regional Development Fund (ERDF), provided practical support for businesses throughout Liverpool.

The LCR 4.0 programme allowed businesses to tap into expert knowledge, advanced technology, and collaborative opportunities at LJMU, to increase their productivity levels. In total, 303 SMEs benefited from the support offered through this programme<sup>3</sup>.

The programme facilitated the creation of 125 Full-Time Equivalent (FTE) jobs, brought 57 new products to the market, and introduced 88 new products to firms.

Through LCR 4.0, 86% of enterprises were supported in developing a new product, 71% brought new products to market more quickly and 43% experienced employment increase.

Overall, the LCR 4.0 project is on target to generate £31m GVA and create 955 new jobs over six years<sup>4</sup> within the Liverpool City Region<sup>4</sup>.

Over the last three years, LJMU has secured £5.2m from European Structural Investment Funds (ESIF) including ERDF funding to support the LCR4.0 programme. These efforts underscore LJMU's commitment to driving innovation, supporting local businesses, and contributing to the region's economic growth.



## European Union European Structural and Investment Funds

## KEY STATISTICS

- 1 **5 UNIVERSITIES** International universities involved in training on the impact of digital technology in the workplace.
- 2 **£7.5<sup>M</sup>** The Risktec training business has generated revenues of over £7.5 million since 2014.
- 3 **303 SMEs** 303 SMEs accessed support through the LCR 4.0 programme.
- 4 **955 NEW JOBS** LCR 4.0 is on target to generate 955 new jobs within the Liverpool City Region.

# REDUCED INEQUALITIES

ACHIEVE EQUALITY FOR ALL PEOPLE

10 REDUCED INEQUALITIES



Inequalities based on income, sex, age, disability, sexual orientation, race, class, ethnicity, religion and opportunity continue to persist across the world. This dangerously threatens long-term social and economic development and harms opportunities to reduce poverty for all people.



LJMU strives to enable equality for all people regardless of income, sex, age, disability, sexual orientation, race, class, ethnicity, religion. Our international and collaborative research aims to give a voice to minoritised and vulnerable communities and end poor treatment of human beings. Our research extends to improving the treatment of women in African prisons and identifying disaster victims through our Face Lab.

LJMU's Diversity and Inclusion Team work proactively within the university community to embed diversity and inclusion practices. The team provide both planned and bespoke equality and diversity advice and are responsible for the robust infrastructure of diversity networks which exist across the university and ongoing liaison with John Moores Students' Union.

## EDUCATION AND STUDENT EXPERIENCE

### Providing vulnerable groups with support through court

LJMU has partnered with Support Through Court, a social justice charity providing free help to vulnerable people facing court.

Through this initiative, our LLB Law students run an on-site service at Liverpool Civil and Family Court. Our students critically allow the charity to continue to offer its life-changing work in the city-region.

All of our student legal support is provided for free and on a face-to-face basis. In 2021, the Support Through Court service supported over 2,100 people who couldn't otherwise get legal representation.

## RESEARCH AND KNOWLEDGE EXCHANGE

### Improving treatment and care of women in African prisons

Our research has shone a light on the appalling environmental conditions, and the neglect of gender sensitive health care, for women in African prisons.

This research was initiated through collaboration with the Universities of Zimbabwe and Malawi, investigating the transmission of HIV in prisons.

LJMU were lead authors on the 2019 United Nations Office on Drugs and Crime and World Health Organization's Technical guidance on Prevention of Mother to Child Transmission of HIV in prisons report.





Face Lab is an interdisciplinary research group focusing on facial depiction and representation, at the interface of art and science.

Face Lab is an interdisciplinary research group focusing on facial depiction and representation, at the interface of art and science. The interdisciplinary research group has been selected for Research Project of the Year (Arts & Social Sciences). The project 'Craniofacial Identification for Migrant Disaster Victim Identification' has been a focus of the team's work since 2020 and the project has been awarded a Times Higher Education award.

## PLACE AND PARTNERSHIP

### Supporting higher education for underrepresented groups

LJMU continues to support access to higher education for underrepresented and harder to reach sections of the community. These communities include the Gypsy, Traveller, Roma, Showmen and Boater (GTRSB) people.

Within this group, only a minority (3-4% of 18 to 30 year olds in the Gypsy, Roma and Traveller populations) are accessing higher education.

However, LJMU is committed to becoming an early adopter of the GTRSB Pledge. This Pledge is a commitment to actively recruit and support students from this underrepresented group.

Alongside this LJMU has run a number of initiatives to create an improved higher education environment for GTRSB groups, including special staff training, actively hearing the lived experiences of GTRSB people, understanding the challenges they face in accessing education, and providing information to support GTRSB students at university.

### Identifying migrant disaster victims with Face Lab

LJMU is part of an international group working to improve the identification of migrants whose attempts to reach safe European countries result in death.

Currently, only 22% of the migrants who die trying to reach safety are identified, and this can severely affect the families of migrants whose fates often go unknown.

However, our research group at LJMU aims to improve Migrant Disaster Victim Identification by establishing a continent-wide resource base to improve identification.

Alongside drones and social media, cutting edge facial reconstruction technology from LJMU's Face Lab will be used in this research. Face Lab technology has already successfully identified victims in the Canary Islands and Greece.

Researchers from Croatia, Cyprus, Greece, Italy, Portugal, Spain are involved in this work, alongside researchers from South Africa and Senegal.

At LJMU, our signature of various equality charters signifies our commitment to and progression of equality, diversity and inclusion (EDI) related areas.

These important charters aim to drive forward positive cultural changes that make a genuine impact of the lives of staff and students.

## KEY STATISTICS



LJMU holds the NAVAJO Chartermark, signifying, commitment and knowledge of the needs, issues and barriers facing LGBTIQ+ people in Merseyside.



LJMU is a Stonewall Diversity Champion, with staff supported through the LGBTIQ+ Staff Network.



LJMU is a Disability Confident Employer. Staff are supported through the Disability Staff Network.



LJMU was awarded the Liverpool Bambis Breastfeeding Friendly Mayoral Award in June 2022.

# SUSTAINABLE CITIES AND COMMUNITIES

SUSTAINABLE, INCLUSIVE AND SAFE SPACES

## 11 SUSTAINABLE CITIES AND COMMUNITIES



To accommodate the growing global population, we need to build modern, sustainable cities. Creating safe, affordable and resilient cities with high-quality living conditions will require collaboration across industry and academia as well as innovative urban planning.



LJMU plays an important role in supporting the sustainability of the Liverpool City Region. We've worked hard to champion green and sustainable travel through the Smart Green Journey app and our Sustainable Green Travel Corridors initiative. Collaborations with industry has also seen the development of cutting-edge road surfaces. We're striving to achieve net zero by 2035, in line with the United Nations goal to reduce warming by 1.5°C.

*"The Smart Green Travel app isn't just a handy, free way of keeping track of your active travel journeys – the data collected from users will also be used to help improve and develop walking and cycling routes across the Liverpool City Region."*

**Simon O'Brien, Liverpool City Region Walking and Cycling Commissioner**

### EDUCATION AND STUDENT EXPERIENCE

#### Active and Sustainable Travel Plan

LJMU declared a climate emergency in 2020 and is striving to achieve carbon net-zero status by 2035<sup>1</sup>. As part of this institution-wide effort, we put in place an institutional Active and Sustainable Travel Plan, encouraging students and staff to take part in active travel wherever possible.

In particular, we're encouraging staff and students to walk or cycle for most journeys to and between campus buildings. Between 2019 and 2020, the number of cycle spaces on campus increased by 22%<sup>2</sup>.

### RESEARCH AND KNOWLEDGE EXCHANGE

#### Prolonging the life of our roads and reducing resurfacing

Thanks to our researchers, a sustainable cold mix asphalt (CMA), COLBIFIBRE, has been developed. Unlike hot mix asphalt (HMA), COLBIFIBRE doesn't need heating and uses waste material, whilst exhibiting improved engineering properties and durability compared to HMA.

The introduction of CMA has led to a reduction in CO<sub>2</sub> emissions by up to 85% during production and fume exposure by 100%<sup>3</sup>. Local councils in the UK, France and Ireland now prefer application of COLBIFIBRE as a maintenance surface layer over other materials.



LJMU is helping to improve walking and cycling uptake across the Liverpool City Region.

LJMU is part of the Liverpool City Region’s Sustainable Green Travel Corridors project encouraging more cycling and walking. LJMU is leading strand 2 of the project, focussed on digital innovation, to promote and incentivise sustainable travel infrastructure through the use of big data.

## PLACE AND PARTNERSHIP

### Creating sustainable green travel corridors

LJMU is leading in the digital innovation strand of a project co-funded by the European Regional Development Fund: the Liverpool City Region (LCR) Sustainable Green Travel Corridors. The project is part of the LCR wide initiative to improve walking and cycling uptake across the region.

Installing sensors across 6 walking and cycling routes will allow monitoring of factors such as usage, weather and road conditions, providing information to local authorities via our LJMU dashboard.

### Increasing green travel uptake through the Smart Green Journey app

The Smart Green Journey app, created by LJMU, has been released to encourage green travel uptake in the region.

The app, backed by the Liverpool City Region Combined Authority, supports users to explore walking and cycling as alternatives to driving short journeys.

It is estimated that an average user of the Smart Green Journey app could save up to 44kg of CO<sub>2</sub> and £20 a month on a 9km commute<sup>4</sup>.

### Sustainable road building using demolished infrastructure

An exciting new project has commenced with Engineers at LJMU. This work is aimed at revolutionising sustainable road and pavement construction by using demolished infrastructure.

By using novel new technology designed by LJMU, there is potential for vast savings in both the construction of new road structures and reconstruction costs, CO<sub>2</sub> emission reductions and preventing disruption to infrastructure users.

The Department for Transport has awarded Liverpool City Council £4m, with a focus on ‘greening up’ the city’s approach to the design and construction of road building and maintenance.

The project is viewed as a key element to drive LJMU’s achievement of carbon net-zero status by 2035.



Our city campuses are based in the heart of Liverpool and LJMU plays an important role in supporting sustainable travel around the region.

## KEY STATISTICS

- 1 **2035 NET-ZERO** LJMU is striving to achieve carbon net-zero status by 2035.
- 2 **22% CYCLE SPACES** Between 2019 and 2020, the number of cycle spaces on campus increased by 22%.
- 3 **85% REDUCTION** The introduction of cold mix asphalt has resulted in a reduction in CO<sub>2</sub> emissions by up to 85%.
- 4 **45KG CO<sub>2</sub>** An average user of the Smart Green Journey app could save up to 44kg of CO<sub>2</sub> and £20 a month on a 9km commute.



# RESPONSIBLE CONSUMPTION AND PRODUCTION

SUSTAINABLE CONSUMPTION AND PRODUCTION

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Our planet is running out of resources, but populations are continuing to grow. Changing our consumption habits and shifting our energy supplies to more sustainable ones are changes we can make to protect our environment and generate energy more sustainably.



Students learn traditional skills such as leather-working and weaving.

At LJMU we're changing the way we consume and produce goods to ensure an increased focus on sustainability. The concept of sustainability has influenced our curriculum, with students having the opportunity to learn about sustainable production in existing modules. Our research and knowledge exchange efforts have also helped to revolutionise material production as far afield as Bangladesh and the Philippines.

*"Our extra modular 'how to' workshops have proved very valuable across the school because now more than ever we need to be more conscious when it comes to sustainability, not just in fashion, but as a lifestyle and a way forward."*

**Cathy Reilly, Liverpool School of Art and Design**

## EDUCATION AND STUDENT EXPERIENCE

### Sustainable fashion through traditional crafts

LJMU Art and Design students are gaining experience in making sustainable design choices through hands on workshops.

These workshops, attended by 120 students, cover some of the traditional skills associated with the creation of fabrics and materials<sup>1</sup>.

Through traditional crafts such as leather bevelling, fabric weaving and spinning, students can make a link between fabrics and the animals they come from, and the connection to local production, thus informing more sustainable garment design choices.

## RESEARCH AND KNOWLEDGE EXCHANGE

### Turning industrial waste into new bricks

An international trial undertaken between LJMU and Chittagong University of Engineering & Technology (Bangladesh) has successfully developed a novel brick created solely from industrial waste, capable of replacing traditional clay and cement blocks.

Traditional production in Bangladesh's brick sector involves toxic fumes and poor working conditions, with highly-polluting open kiln processes being outlawed to reduce air pollution and carbon emissions.

However, the new brick is unfired, meaning large savings in coal and timber can be made, thus reducing air pollution and carbon creation.





LJMU developed a new brick using zero primary resources.

Clean brick manufacturing has become a key industrial priority since the Bangladeshi government moved to outlaw highly-polluting open kiln processes by 2023/24 in a bid to cut air pollution and carbon emissions.

A successful trial supported by LJMU means that this new brick uses zero primary resources and displays all the properties of a conventional brick.

Fortunately, the novel brick is equivalent in durability, strength and robustness to existing clay and cement and uses zero primary resources<sup>2</sup>. The development process can be quickly implemented in SMEs with very little set up efforts.

**Minimising the environmental impact of mining in the Philippines**

LJMU is part of a £1.5 million international collaboration, co-funded by the UK Natural Environment Research Council, with the aim of enabling a new era of sustainable mining in the Philippines: project PANAMA<sup>3</sup>.

The move from fossil fuels to sustainable and more technically complex energy technologies, such as wind, electric and solar, is reliant on increased production of ‘technology critical materials’ in a sustainable way.

The Philippines has globally significant deposits of such minerals and project PANAMA seeks to understand how to mine sustainably so that environmental impacts are minimised, global demand for these materials is met, and climate change can be mitigated.

Project PANAMA critically enables mining stakeholders to minimise the environmental and ecological impacts of mining that were previously harming the natural environment.

**PLACE AND PARTNERSHIP**

**Providing local and sustainable food options**

We encourage sustainable food consumption and reduce waste through our partnerships with local organisations.

We are co-leads of the Love Food Hate Waste and Liverpool Food People (alongside the Knowledge Quarter Sustainability Network).

Our University-wide Hospitality Policy ensures that staff use internal catering services which has reduced delivery miles, packaging and food waste and encourages sustainability in food consumption and production. As part of this strategy, 85% of our food packaging is now compostable<sup>4</sup>.



**KEY STATISTICS**

- 1 **120 STUDENTS** 120 students have been able to learn traditional skills such as leatherworking and weaving.
- 2 **0 RESOURCES** A novel brick created solely from industrial waste uses zero primary resources.
- 3 **£1.5<sup>M</sup>** We are part of a collaboration of five UK universities to provide a holistic understanding of mining impacts on Philippine river systems.
- 4 **85% VEGWARE** Where possible, we have switched to compostable packaging, currently 85% of all packaging is using the Vegware brand.

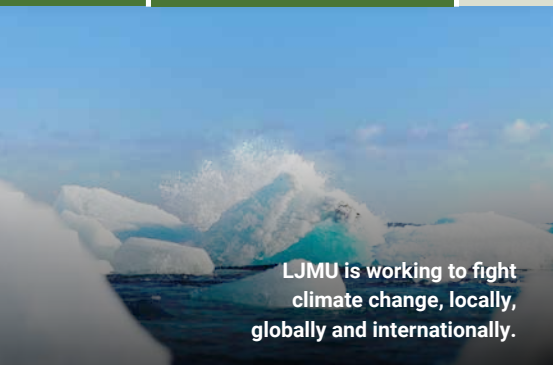
# CLIMATE ACTION

URGENT ACTION TO COMBAT CLIMATE CHANGE

13 CLIMATE ACTION



Climate change is an undeniable threat to the world's growing population, with many harmful effects already realised and visible. Through education and innovation, cooperation and commitment, the necessary changes can be made to protect the future of our planet.



LJMU is working to fight climate change, locally, globally and internationally.

We're committed to protecting our environment and supporting a sustainable future for our students and the global community. On campus, we launched the UK's first undergraduate degree on climate change and have revamped our buildings to reduce carbon emissions. Globally, we've used ground-breaking research to tackle peat fires in Indonesia and we've delivered flood resilience workshops in Cumbria.

LJMU declared a climate emergency in 2020. We know how important this issue is to our students and staff and have committed to achieve net zero for scope 1 and 2 emissions by 2035. In our **Climate Action Plan**, we have set ourselves challenging, but crucial, targets to help us meet this goal.

**LJMU Climate Action Plan**

## EDUCATION AND STUDENT EXPERIENCE

### Leading the way in undergraduate education on climate change

LJMU is leading the way in undergraduate climate change education by offering the first BSc in Climate Change in the UK, launched in 2020.

The BSc has been developed in response to a clear need for graduates with the knowledge and practical skills required to tackle climate change, from technical knowledge to the ability to communicate with the public.

A total of six courses cover climate and environmental science within our curriculum<sup>1</sup>.

Outside of the classroom, our students were offered the opportunity to conduct engaging fieldwork in Iceland.

## RESEARCH AND KNOWLEDGE EXCHANGE

### Combining ecology research with astrophysics techniques to tackle peat fires

LJMU researchers are using high-tech drones to tackle peat fires in Indonesia. The drones, which have been used over two peat fire seasons, utilise thermal cameras and an automatic fire-detection system that is more than 10 times faster at finding fires and 50% faster at extinguishing fires.

This represents an estimated saving of 78 tons of CO<sub>2</sub> entering the atmosphere per drone system per month and reduces the amount of hazardous smoke inhalation to residents and fire fighters<sup>2</sup>.



We're using high-tech drones to tackle peat fires in Indonesia.

*"We estimate that use of a thermal drone allows fire hotspot location mapping to be completed around at least 10 times quicker and with almost no safety risk, which in turn improves the ability of teams to monitor the current fire situation and deploy team members as necessary to prevent fire spread and extinguish hotspots"*

**Director of Programs at Borneo Nature Foundation**

## PLACE AND PARTNERSHIP

### Increasing flood resilience in Cumbria

Following two incidents of major flooding in the last decade, we facilitated a community workshop with members of the Cumbrian Flood Action Groups in Keswick.

The workshop marked the start of a new research pilot that has been aiming to understand which factors affect the longevity of important voluntary groups.

With extreme weather events in the UK likely to increase in frequency and impact, voluntary, grassroots groups are becoming even more crucial to founding and embedding resilience in flood prone communities, particularly across the North-West of England.

The workshop aimed to lay the foundations to develop flood resilience at a national level, accounting for different local contexts and communities.

### Using innovative architecture to reduce carbon emissions

Our Climate Action Plan commits us to reducing our scope 1 and 2 emissions by 2025, and our eco-friendly buildings have helped us to achieve a 34% reduction<sup>3</sup>.

We commissioned an energy modelling study to determine the energy performance of the Henry Cotton Building. The survey found that a number of upgrades would improve the building's energy efficiency and lower its carbon footprint.

The extensive works involved replacing existing gas fired boilers with 11 high-efficiency heat pumps and replacing an old, wasteful air handling unit with a new high-efficiency model.

Visit our campuses and you will find a wide range of green initiatives, from rainwater harvesting and solar panels to wildflower gardens and green roofs.

We get 100% of our electricity from renewable sources, recycle two-thirds of our waste and we have halved our total carbon emissions over recent years<sup>4</sup>.



We are reducing our CO<sub>2</sub> emissions through eco-friendly buildings.

## KEY STATISTICS

1

**6 COURSES**

LJMU offers six courses covering climate and environmental science.

2

**78 TONNES**

High-tech drones that detect peat fires can stop 78 tonnes of CO<sub>2</sub> entering the atmosphere per drone system per month.

3

**34% REDUCTION**

We have reduced our Scope 1 and Scope 2 carbon emissions by 34% since 2015/16.

4

**100% RENEWABLE**

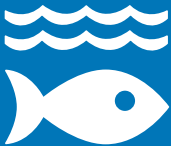
100% of our electricity comes from renewable energy sources.



# LIFE BELOW WATER

PRESERVE OCEANS FOR FUTURE GENERATIONS

14 LIFE BELOW WATER



Our oceans are the world's largest ecosystem. Conserving and using them sustainably is essential to support biodiversity and protect marine resources for sustainable development.



LJMU research and facilities help to protect marine life and preserve our oceans for future generations. Locally, we offer state of the art facilities for students to train the next generation of maritime experts. We also work closely with ports and maritime companies to tackle key industry challenges. Internationally, our researchers have used forensic science to curb the illegal trade of marine wildlife and to detect microplastics in seas.

In terms of research, the simulator has been used to confirm the suitability of new berthing facilities, which has proven economic value. It has also been used to research the impact of civil engineering projects on the marine environment as well as conducting investigations into maritime accidents and insurance claims.

**LJMU Maritime Research Centre website**

## EDUCATION AND STUDENT EXPERIENCE

### Meeting the training needs of the maritime industry

At the Maritime Centre, LJMU meets the diverse training needs of the maritime industry through top-tier facilities and specialised courses.

The unique facilities include a ship handling simulator, an Electronic Chart Display and Information Systems (ECDIS) suite, an engine room simulator and a Liquid cargo Operations Simulator (LICOS). The facilities are used to train maritime professionals, deck officers and marine engineers.

Our ship-handling simulator allows students to experience real-life scenarios, testing their responses to induced equipment faults and manoeuvring difficulties.

The simulator also has substantial practical, economic and sustainability value. Critically, it has been used for research purposes, validating the suitability of new berthing facilities, and studying the impact of civil engineering projects on marine environments. It also aids in investigating maritime accidents and insurance claims.

## RESEARCH AND KNOWLEDGE EXCHANGE

### Supporting fishermen and women through LJMU research

In 2020, LJMU contributed to a report focusing on the financial challenges experienced by 431<sup>1</sup> fishers who turned to maritime charities for help and support. The report explored the challenges of living on a fishing income for independent fishers not employed by larger companies.





Ship-handling simulator.

The Maritime Knowledge Hub, operated jointly with Mersey Maritime, includes a 360-degree ship-handling simulator<sup>4</sup>.

The Maritime Knowledge Hub is gearing up to be a global centre of excellence within the UK, generating knowledge-led growth and innovation.

The report recommended that The Seafarers' Charity should create a 'safety net' to support the personal finance needs of fishing families and enhance their financial resilience. In 2021, The Seafarers' Charity took this advice on board and launched Safety Net for fishing families in the UK.

### Trawling remote polar seas for microplastics

A groundbreaking study led by LJMU, Queen's University Belfast, and the British Antarctic Survey has revealed that microplastic pollution levels on the Antarctic seabed are similar to those found in the North Atlantic and Mediterranean. Researchers took samples of the seabed of up to 3.6km in depth<sup>2</sup> and discovered at least one particle of microplastic for every gram of sediment on the Antarctic seabed. As microplastics take hundreds of years to degrade, this research highlights the urgent need for action against plastic pollution.

### DNA detectives use crime scene methods to curb illegal wildlife trade

LJMU academics led an international team of scientists to develop a method to analyse the health and diversity of marine ecosystems using environmental DNA (eDNA) found in seawater. The team found that eDNA

provides a diverse range of species data, which is a significant breakthrough, benefitting marine conservation efforts, providing a cheaper, safer, and more inclusive method for assessing ecosystem health and monitoring biodiversity.

The technique has already managed to detect twice as many species as other methods, in a fraction of the time<sup>3</sup>.

Turning their detective skills to the illegal shark fin trade, our researchers have been able to find residue and genetic material from animals illegally killed by poachers. Residues of shark fin can be collected at fish processing plants, and the technique can even be used on boats.

## PLACE AND PARTNERSHIP

### Supporting maritime innovation

We are proud partners in the Maritime Knowledge Hub, collaborating with Mersey Maritime, Wirral Council, and Peel Ports. This Hub serves as a comprehensive platform for maritime business and technology incubation, assisting start-up SMEs in commercialising new technology and helping existing SMEs incorporate novel tech into their products or services.



Image: Oliver Hogg (British Antarctic Survey).

Researchers collected samples of the seabed in Antarctica.

## KEY STATISTICS

- 1 **431 FISHERS** 431 fishers turning to maritime charities for support were represented in an LJMU report.
- 2 **3.6<sup>KM</sup>** Samples of the seabed were collected up to 3.6km in depth to detect microplastics.
- 3 **2x SPECIES** The technique has already managed to detect twice as many species as other methods, in a fraction of the time.
- 4 **360 DEGREES** Our Maritime Hub includes a 360-degree ship-handling simulator.

# LIFE ON LAND

PROTECT AND RESTORE OUR ECOSYSTEM

15 LIFE ON LAND



Protecting life on land is essential to allow human, animal and plant life to flourish. Harmful activities such as deforestation and land degradation are damaging our ecosystems. Protecting, restoring, and promoting the sustainable use of land is essential to survival.



An endangered Tapanuli orangutan.

Many LJMU projects focus on protecting Life on Land. For example, we've applied groundbreaking artificial intelligence technology to promoting wildlife conservation and we've led international research projects to protect endangered species in Indonesia. On campus, we're creating green spaces for staff and students. Across the Liverpool City Region, we're working with local authorities to put nature at the heart of city planning.

*"The research on the Tapanuli orangutan has led to a change in policy focus whereby we are focusing on improving protection of this species, which has included discussions with the Indonesian Government at the ministerial level."*

**Dr. Refisch, United Nations Environment Programme (UNEP) Great Apes Survival Partnership (GRAS) Programme Manager**

## EDUCATION AND STUDENT EXPERIENCE

### 'Greening up' our campus

Our campuses consist of natural, semi-natural and landscaped environments which provide a good mix of habitats. These are key contributing areas for biodiversity cultivation and feed into a broader agenda to enhance the natural resources in and around the university.

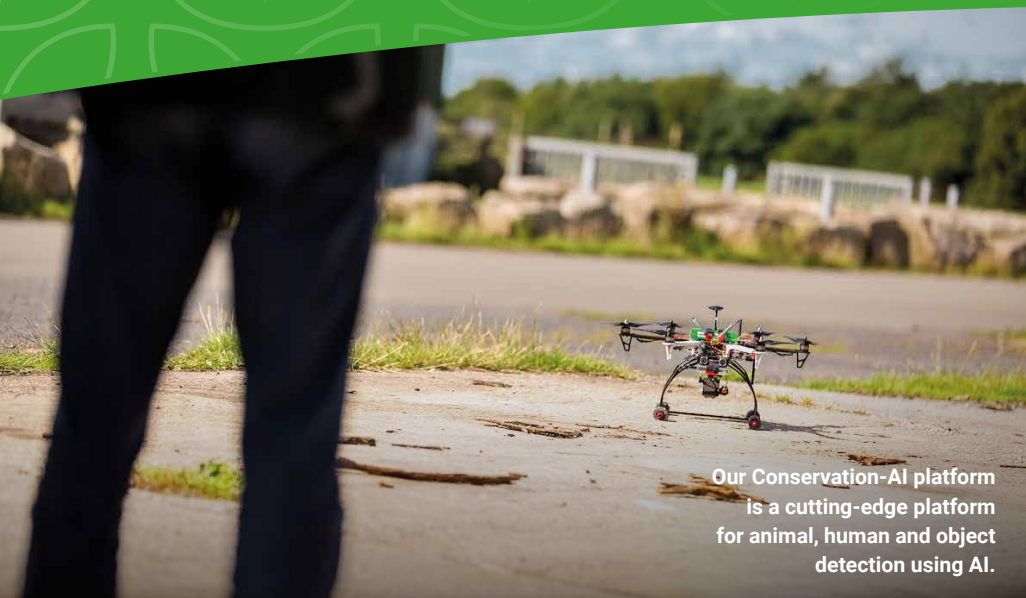
Recently, we have been busy 'greening up' our campus, by taking part in activities set up as part of National Gardening Week. We've supported urban wildlife in our city by building beehives and bird hides, as well as setting up a mini allotment at the Tithebarn Building and a herb garden.

## RESEARCH AND KNOWLEDGE EXCHANGE

### Improving orangutan conservation through research

LJMU's world-leading animal conservationists are conducting valuable research to prevent the loss of thousands of orangutans, one of the most critically endangered species in the world.

Our research was used by an Indonesian NGO fighting against the development of a hydroelectric project that would have negative impacts on the orangutan population. The Indonesian Government have developed an Orangutan Conservation Action Plan and Strategy informed by our research that will remain in place until 2029<sup>1</sup>.



Our Conservation-AI platform is a cutting-edge platform for animal, human and object detection using AI.

Conservation AI (image left) is helping to tackle the crucial problem of rapid biodiversity loss using drones and machine-learning. An Institute of Physics Report noted:

*“The speed and efficiency at which surveys can be conducted, especially when compared to previous labour-intensive methods, saves significant money and time, directly contributing to slowing down biodiversity loss.”*

### Using Artificial Intelligence (AI) to tackle biodiversity loss

Our cutting-edge Conservation AI platform is renowned in the field of conservation technology. This platform, that uses drone and AI technology to detect animals, humans and man-made objects, helps to prevent biodiversity loss caused by poaching. Using high-precision interpretations of thermal camera data from drones, the technology has the potential to make animal surveys up to 100 times faster<sup>2</sup> and is already in use by esteemed organisations worldwide, including the BBC, WWF and Chester Zoo.

### Relocating threatened species

The process of relocating plants, fungi, and animals often fail. However, LJMU researchers found that climate suitability, a previously un-investigated area, plays a significant role in increasing the likelihood of successful species relocations among insects, amphibians and reptiles.

This research has altered several longstanding international conservation practices. For example, the International Union for the Conservation of Nature (IUCN) developed comprehensive guidelines based on this research, informing international legislation and codes of best practice.

## PLACE AND PARTNERSHIP

### Putting nature at the centre of planning policy

Liverpool City Region (LCR) Combined Authority and LJMU are involving nature in city planning. LJMU created the first natural capital baseline for the Liverpool City Region by mapping green spaces, water and air quality to enable sustainable city planning and enhance residents’ wellbeing.

This research has informed training workshops for spatial development and planning officers from across the LCR. Access to LCR green spaces supports 145k active visits per year<sup>3</sup>.

### Applying nature-based solutions to climate change

LJMU contributed to a report by the British Ecological Society, offering a complete assessment of the potential for nature-based solutions to UK climate change. The report recommended that the UK Government honours its commitment to plant over 30,000 extra hectares of woodland per year by 2025<sup>4</sup>.

Natural Capital, an LJMU led initiative, is helping the city and region’s policy makers, planners and other key stakeholders to understand the broad-based benefits derived from natural capital assets. This supports decision making to protect and enhance the environment.

## KEY STATISTICS

- 1 **2029** The Orangutan Conservation Action Plan and Strategy we supported will remain in place until 2029.
- 2 **100x FASTER** Conservation AI has the potential to make animal surveys up to 100 times faster.
- 3 **145<sup>K</sup> VISITS** Access to LCR greenspace supports 145k active visits per year.
- 4 **30<sup>K</sup> EXTRA** Our research recommends that the UK Government honours its commitment to plant over 30,000 extra hectares of woodland per year by 2025.



# PEACE, JUSTICE AND STRONG INSTITUTIONS

PEACEFUL AND INCLUSIVE SOCIETIES

16 PEACE, JUSTICE  
AND STRONG  
INSTITUTIONS



Institutions at all levels should be effective, accountable and inclusive at all levels. However, conflict and violence throughout the world can threaten this. Governments and communities must work together to find solutions to manage conflict and insecurity.



LJMU is committed to creating peaceful and inclusive societies. On campus, we support Armed Forces Day and we're recognised under the Ministry of Defence's Employer Recognition Scheme. Locally, we've partnered with the Merseyside Police, raising the standard of policing in Merseyside. Nationally, LJMU AI researchers helped to solve a murder case using a deep learning method originally developed for eco-conservation.

*"There is no excuse for sexual violence. Through Safer Streets Merseyside, we are taking a multi-faceted approach to tackling it – not just challenging perpetrators and unacceptable behaviour but also looking to change attitudes, while taking practical steps to make sure women feel safer and give them the confidence to report incidents and seek support."*

**Emily Spurrell, Police and Crime  
Commissioner Merseyside Police**

## EDUCATION AND STUDENT EXPERIENCE

### Creating safer streets for students

John Moores Students' Union (JMSU) has been supporting the Merseyside Safer Streets campaign, aimed at increasing women's safety, particularly around the city's transport network. Following a successful first phase, the campaign is now being extended to increase efforts to tackle Violence Against Women and Girls. The campaign provides direct and practical support, such as increased police presence, as well as education to change attitudes.

The Night-time Guardians – a JMSU-run project which sees LJMU student volunteers trained to provide support

in Liverpool's night-time economy (NTE) – is now underway for a second year and aims to develop a peer support network in Liverpool City Centre for students and other NTE service users.

Running on weekends and at other peak times in the NTE, such as Freshers Week, the Night-Time Guardians Scheme provides help in getting home safely.

Night-time Guardians' volunteering opportunities are open to 100% of LJMU students<sup>1</sup>, and those involved in the programme receive a comprehensive training package. Four of the students from last year's cohort have been featured on the BBC Sunday Morning Politics Show<sup>2</sup>.





Commissioner Emily Spurrell (fourth from left) with student guardians and street pastor Mark Latham.

Following the success of the Safer Streets campaign, the project is now being expanded to increase efforts tackling Violence against Women and Girls. A second successful bid for £576,000 of Home Office funding will support the development of the nighttime guardian project.

## RESEARCH AND KNOWLEDGE EXCHANGE

### AI detection system used in murder case

LJMU forensic science was used by the Metropolitan Police to analyse CCTV footage in the preparation of a murder case, that lead to a successful conviction for murder.

Using deep learning approaches, our AI object detection platform was used to analyse and significantly reduce the number of CCTV images the Met Police needed to review to identify the murder suspect. Originally developed for eco-conservation, the AI tool meant that 28 days' worth of CCTV footage could be processed in 7 days which would otherwise be an unviable option<sup>3</sup>.

To make this possible, Computer Scientists, Astrophysicists and Ecologists at LJMU collaborated to develop the deep learning platform.

It is hoped that LJMU can continue to provide valuable data to policing and security services to prevent crime and improve public safety.

## PLACE AND PARTNERSHIP

### Supporting the Armed Forces community under the Armed Forces Covenant

We proudly support the Armed Forces and are signatories of the Armed Forces Covenant which pledges to acknowledge and understand those serving or who have served in the Armed Forces.

As an institution, we recognise that veterans, along with their families, should be treated with fairness and respect in the community, particularly where they've suffered injury or bereavement.

To further this commitment, we've appointed an Armed Forces Champion and formalised a cross-university Armed Forces Steering Group which focuses on ensuring better support for students and staff who are veterans, reservists, or family members of Armed Forces personnel.

In 2022, we achieved the silver award under the Ministry of Defence Employer Recognition Scheme<sup>4</sup>, and we celebrate Reserves Day (Wednesday 21 June) and Armed Forces Day (Saturday 24 June) on campus.



The Faculty of Health hosts the Global WHO Collaborating Centre (WHO CC) for Violence Prevention. Our status as a WHOCC allow us to continue developing much needed collaborative work on violence prevention and peace at local, national and international levels.

## KEY STATISTICS

- 1 **100%** LJMU Night-time Guardians' volunteering opportunities are open to 100% of LJMU students.
- 2 **4** Four of the students from last year's cohort have been featured on the BBC Sunday Morning Politics Show.
- 3 **7 DAYS** 28 days' worth of CCTV footage were processed in 7 days to solve a murder case.
- 4 **2022 AWARDED** We achieved the silver award under the Ministry of Defence Employer Recognition Scheme in 2022.

# PARTNERSHIP FOR THE GOALS

PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT

17 PARTNERSHIPS FOR THE GOALS



The United Nations Sustainable Development Goals commit to ending poverty and inequality and addressing climate change by 2030. Meeting the SDGs by 2030 will require global partnership, and collaboration between governments, the private sector, and civil society all working towards these shared objectives.



Launch of the Digi:Đổi Consortium in Hue City, Vietnam.

We are leading by example in our commitment to supporting the UN SDGs. As an institution, we are actively working towards these goals by prioritising actions to align our teaching and curriculum with the SDGs. Nationally, we are signatories of several covenants in support of equality, diversity and inclusion. Internationally, we're leading a British Council consortium to address major global challenges and issues.

*“The PRME symposium called for important actions around increasing the presence of sustainability in the business curriculum, bringing more local and indigenous knowledge into business knowledge, and evaluating the impact of our innovations. This is aligned with our own commitment as a signatory of the PRME.”*

**Dr Adam Shore, Director of Liverpool Business School**

## EDUCATION AND STUDENT EXPERIENCE

### Showcasing sustainability in business education

Since joining the United Nations' Principles of Responsible Management Education initiative (PRME) LJMU Business School has grown all aspects of its portfolio.

In our first two years as a PRME signatory, LJMU hosted the very first European Symposium for Sustainability in Business Education. The symposium included innovators from ten countries<sup>1</sup>, each sharing and showcasing innovations and research projects to support the teaching of sustainability across business schools.

## RESEARCH AND KNOWLEDGE EXCHANGE

### Driving digital transformation in the UK and Vietnam

Funded by the British Council Vietnam, LJMU is leading the Digi:Đổi Consortium – a global network to deliver a future-proofed, scalable digital transformation hub in Vietnam.

The Digi:Đổi Consortium (“đổi” meaning transformation in Vietnamese) will aim to drive mutual digital transformation in universities across Vietnam and the UK by pooling resources and expertise.

Consortium members include LJMU, Jisc, the Open University the ASEAN network and more.



Inaugural launch event for the British Council Going Global Partnership.

*“LJMU is honoured to be chosen as the Consortium Secretariat in the British Council funded UK-Malaysia University Consortium. Through this collaboration new relationships will be formed, new networks and strategic partnerships established, research networks developed, and joint research opportunities realised.”*

**Prof Keith George, LJMU PVC for Research & Innovation**

### Leading an international partnership with Malaysia

LJMU has had the honour of being chosen as the Consortium Secretariat of a new Going Global Partnership. This Partnership has been made between 16 UK universities and 20 Malaysian institutions and is funded by the British Council<sup>2</sup>.

The Consortium will enable sector experts to better exchange knowledge and resources to overcome some of the world's major issues. The Partnership is also designed to reinforce global perceptions of both the UK and Malaysia as centres of higher education excellence.

### PLACE AND PARTNERSHIP

#### Our commitment to the Sustainable Development Goals

We are leading by example in our commitment to the UN SDGs.

In 2014, we joined the Athena SWAN Charter, and received an Institutional Bronze award, in recognition of our ongoing work relating to gender equality. We signed the Race Equality Charter in 2022, helping us to break down institutional and cultural barriers for Black, Asian and Minority Ethnic staff and students.

We declared a climate emergency in 2020, implementing the LJMU Climate Action Plan and LJMU Sustainability Report. Our staff lead the way in research and teaching, which provides solutions to local, regional, and global challenges of climate change<sup>3</sup>.

Now, we are currently developing a Climate Institute at LJMU which will focus on enabling the transition to a more sustainable future. We are involving staff with the development of the Institute by holding an action-oriented and fast-paced design sprint to help form the application for the new institute. The Institute will bring together staff with expertise across seven SDGs<sup>4</sup>, particularly those focused on climate, health, consumption and production.

We are signatories of the Armed Forces Covenant, demonstrating our commitment to peace, justice and strong institutions.

These efforts, and many more, aim to reduce hunger, poverty and inequality, protect our climate and encourage sustainable development.

## SUSTAINABLE DEVELOPMENT GOALS

### KEY STATISTICS

- 1 **10 COUNTRIES** A total of 10 countries were represented at the European Symposium for Sustainability in Business Education hosted by LJMU.
- 2 **36 INSTITUTIONS** Total number of UK and Malaysian institutions in a North-South consortium: the Going Global Partnership.
- 3 **2022 ACTION PLAN** We declared a climate emergency in 2020 and implemented the LJMU Climate Action Plan and LJMU Sustainability Report.
- 4 **7 SDGs** Our forthcoming Climate Institute will bring together staff with expertise across seven SDGs.

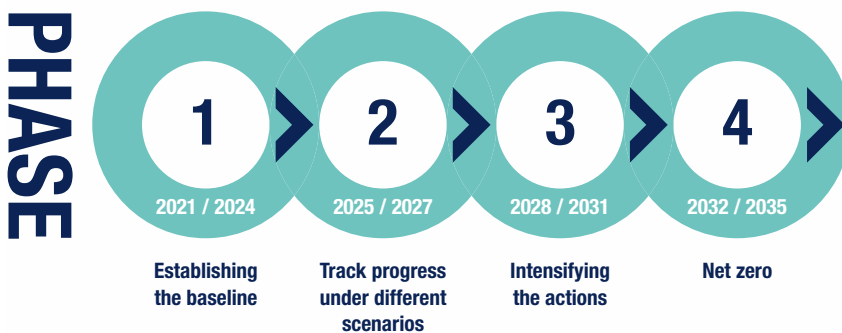


# NEXT STEPS

OUR TARGET IS TO BE NET ZERO BY 2035

**The climate crisis is the biggest emergency we face as a planet.**

At LJMU we know how important this issue is to our students, staff and communities. In 2020 we declared a climate emergency and have set ourselves an ambitious target to be net zero by 2035. **Our Climate Action Plan 2022-2035** sets out a four-phase approach and establishes goals and priorities for the next 10 years to help us achieve our net zero target.



Through our Climate Action Plan we have set ourselves challenging but crucial targets to ensure that sustainability remains firmly at the core of our operations. The plan has five themes with associated key actions as set out here.

## LEADERSHIP AND GOVERNANCE

Our ambition is to achieve a net zero carbon future by 2035. We will lead by example to communicate, prioritise, fund and deliver actions to achieve that.

### Key Actions:

- LJMU has committed to be net zero for scope 1 and 2 emissions by 2035, monitoring progress through public statements.
- Invest in sustainability work with additional staff and funding of climate and sustainability programmes and projects.
- Aim for platinum Environmental Management Status on campus, embedding sustainability into policies, and leading environmental initiatives with partners across the Liverpool City region.

## EDUCATION AND STUDENT EXPERIENCE

Our ambition is to embed pro-environmental behaviour to lower our impact. We will engage and equip students and staff to meet sustainable development goals and to raise carbon awareness.

### Key Actions:

- LJMU has committed to embedding sustainability and climate justice into the curriculum for every student.
- Investing to deliver sustainability projects within the curriculum, providing access to carbon awareness tools and resources for students and staff.
- Educational programmes and opportunities, e.g. volunteering and outreach, to help develop students' employment skills for climate change, carbon management and sustainability.

## RESEARCH AND KNOWLEDGE EXCHANGE

Our ambition is to mitigate climate change impacts for societal benefit. We will collaborate and share our climate change, sustainability and low carbon research expertise.

### Key Actions:

- Ring-fenced funds for research on climate and sustainability, such as student activity, PGR scholarships and cross-faculty interdisciplinary projects.
- Continuing LJMU support for businesses and organisations to develop low carbon goods, processes and services to advance climate action.
- Establish an LJMU Institute for Climate Change and Sustainability, and deliver a programme of events to enhance public engagement with our sustainability research.



# NET ZERO BY 2035



## PLACE AND PARTNERSHIP

Our ambition is to promote positive climate action. We will support our civic partnerships, local businesses, community groups and our students to engage in positive climate action.

### Key Actions:

- LJMU will work with regional partners and organisations on initiatives to make the Liverpool City Region greener, safer and more inclusive.
- Active and Sustainable Travel Plan to increase walking and cycling and reduce car journeys.
- Create new green spaces on campus available to both the public and our LJMU community.

## CAMPUS MANGEMENT

Our ambition is to mitigate our climate impact and enhance our sustainability. We will decarbonise our estate, increase our biodiversity, enhance the sustainability of our procurement supply chain and lower our carbon emissions.

### Key Actions:

- Commission decarbonisation plans and a carbon management plan to further reduce emissions and increase renewable energy installations across LJMU campuses.
- Deliver new policies for a range of targets such as recycling 70% of waste, sustainable procurement, and increasing plant-based catering items by 20%.
- Enhance biodiversity on campus, improve cycling infrastructure and achieve the highest external award standards for our buildings and campuses.

We at LJMU believe in leading by example and aim to prioritise our actions to align with **The United Nations** Sustainable Development Goals.

We will work closely with our partners to make a positive difference at a local, national, and global level.

**LJMU  
CLIMATE  
ACTION**

SUSTAINABLE  
DEVELOPMENT  
GOALS



LIVERPOOL  
JOHN MOORES  
UNIVERSITY