



UNIVERSITY OF
BIRMINGHAM

The Hong Kong Foundation: an update on the impact of your support

January 2025

Welcome from the Chair: Dr Guy Look

(BCom Industrial Economics and Business Studies,
1979; DUniv, 2013)



Dear friends of the Foundation,

It is my privilege to introduce you to this year's Hong Kong Foundation impact report. Reflecting on the past year, it's clear that our collective commitment to the transformative potential of environmental protection, education, research and cultural exchange continues to build the relationship between Hong Kong and the University of Birmingham.

Together, we are creating opportunities for both cities to enjoy the benefits of our work, to grow and innovate, thanks to the dedication of our team, partners, alumni and supporters.

I would like to begin by expressing our appreciation for the support of our founding stakeholders. Their commitment and influence have been vital to the progress documented in these pages. Through this collaborative spirit, we can nurture future leaders, promote academic excellence and inspire lasting environmental and social impact.

Since 2019, the Hong Kong Foundation has championed initiatives that respond to the needs of our communities, while building bridges between Hong Kong and Birmingham. Our partnerships with the University of Hong Kong, the Hong Kong Polytechnic University and the Education University of Hong Kong continue to create opportunities for knowledge exchange and mutual learning for students and researchers alike.

This year, we continue to celebrate the Geoffrey Ma Scholarships, which provide vital financial support to talented students from Hong Kong. The success of these scholarships reflects the Foundation's commitment to developing talent and ensuring that students from all backgrounds can access and benefit from the opportunities provided by the University of Birmingham. Our funding for mobility opportunities also enables Birmingham students from diverse backgrounds to experience Hong Kong, connect with our alumni and develop valuable cultural and leadership skills — strengthening the ties between our communities.

In addition to supporting education, we have continued our initiatives in healthcare, environmental sustainability and social enterprise. Through strategic investments, community partnerships and forward-thinking initiatives, we are striving to create a future where members of our society have the resources to thrive.

As you read this report, I encourage you to continue to support us in our mission and share your insights. It is with great gratitude that I thank each of you, whose commitment has helped build our success.

I look forward to our continued journey together, shaping a brighter future for both Hong Kong and Birmingham.

Yours sincerely,

A handwritten signature in black ink, appearing to be 'Guy Look', written in a cursive style.

Dr Guy Look
Chair of the University of Birmingham Hong Kong Foundation

Hong Kong Foundation financial statements

An extract from the financial statements of the University of Birmingham Hong Kong Foundation Limited is shown below. On 31 July 2023, the Foundation had cash reserves of HK\$ 1,162,024 (31 July 2022: HK\$2,391,245). During the year ended 31 July 2023, the Foundation donated HK\$2,199,260 towards the independent foundation fund for programmatic and operations support to the University.

Income statement HK\$

| Income | 1.8.2022 to 31.7.2023 | 1.8.2021 to 31.7.2022 |
|-----------------------------|-----------------------|-----------------------|
| Donation income | 872,000 | 508,000 |
| University subsidy | 151,700 | 150,000 |
| Bank interest income | 4,849 | 33 |
| Exchange gain | 94,236 | 0 |
| Total | 1,122,785 | 658,033 |
| Expenditures | | |
| Bank charges | -1,046 | -2,900 |
| Programme project support | -2,199,260 | -1,518,728 |
| Service fee | -151,700 | -150,000 |
| Total | -2,352,006 | -1,671,628 |
| Deficit for the year | -1,229,221 | -1,013,595 |

Analysis of programme project support:

| | | |
|--|------------------|------------------|
| Geoffrey Ma Law Prizes | | 299,906 |
| Learning to Learn | | 632,502 |
| Hong Kong Plastic Rivers | | 586,320 |
| Geoffrey Ma UG & PG Scholarships | 474,500 | |
| Beating The Complexity of Nasopharyngeal Carcinoma | 474,500 | |
| Zero Emission Cold Chain Transport Technologies | 303,680 | |
| Changing Childhoods in a Changing World | 959 | |
| Hong Kong Plastic Rivers | 959 | |
| Hong Kong Foundation Fund | -38,492 | |
| Leadership Programme & Internships for WP Students | 367,263 | |
| Building Clinical Research Careers in Rehabilitation And Physiotherapy | 359,519 | |
| Climate Change & Mental Health | 256,372 | |
| Total | 2,199,260 | 1,518,728 |

Statement of financial position HK\$

| | 31.07.2023 | 31.07.2022 |
|-------------------|------------------|------------------|
| Bank balances | 1,162,024 | 2,391,245 |
| Net assets | 1,162,024 | 2,391,245 |

The Geoffrey Ma Scholarships: Empowering Hong Kong students through education

The Geoffrey Ma Undergraduate and Postgraduate Taught Scholarships at the University of Birmingham provide a transformative pathway for Hong Kong students whose ambitions might otherwise be limited by financial constraints.

The undergraduate market in Hong Kong remains robust, particularly in high-demand fields like Medicine, Business Management, Law and Computer Science. However, a declining population and competitive offerings from local institutions have led more students to study in Hong Kong or consider other locations.

The Geoffrey Ma Scholarships position the University as a prime choice among Russell Group universities in a highly competitive educational landscape. The programme aims to attract talented students early in their decision-making process, enhancing the University's visibility in Hong Kong.



'I feel honoured and grateful to have been selected as a recipient of the Geoffrey Ma Scholarship. This scholarship will allow me to focus on my studies and give back in a way that is meaningful to the community and to my future career goals. I cannot wait to join the University of Birmingham and I will surely carry out my role as a student and in the city in ways that the University would be proud of.'

'I would like to thank Mr Geoffrey Ma and the Hong Kong Foundation for their support to students like me as it will make a difference. I cannot thank you enough.'

Megan Lee
Geoffrey Ma Scholarship recipient 2023/24



Ruth Foster (International Officer) and Mark Au-Yeung (Country Representative) meeting Geoffrey Ma to discuss the scholarship and update on activity.



Mark Au-Yeung (Country Representative) with some of the scholars who started in September 2023.

Achievements and impact

Since its launch, the Geoffrey Ma Scholarships have supported a diverse group of students, with recent awards helping students in fields ranging from Psychology and Engineering to Computer Science and Trauma Science. Two undergraduate and two postgraduate awards — valued at £15,000 and £10,000 respectively — were given this year, reflecting the scholarship's broad appeal across disciplines. An integral part of the selection process, interviews led by the International Recruitment Team and the University of Birmingham Hong Kong Alumni Association, ensure that scholarship recipients align with Birmingham's values of inclusion and engagement.

The financial support provided by the scholarship not only aids with tuition but also allows recipients to fully immerse themselves in university life, from exploring British culture to networking and volunteering. This support enables students to engage meaningfully with the University and the wider community, enhancing their academic journey and personal growth.



The impact of the Geoffrey Ma Scholarships is best reflected in the words of the recipients:

'Thank you so much for the great news. I am very grateful to receive the scholarship and will be contributing as much as I can to the University in the future.' **Pak Sum Lee (Aidan)**

'I wanted to take a moment to express my sincere gratitude for awarding me the prestigious Geoffrey Ma Birmingham Hong Kong Scholarship. I am truly honoured and grateful to be chosen for this valuable opportunity. Thank you for your confidence in me and for your generous support. I am excited to be at the University of Birmingham to start my educational journey and am committed to making the most of this scholarship.' **Wing Chi Ng (Christine)**

'I am beyond glad to have become the recipient of this honour and I would like to express my gratitude once again for your munificence.' **Wai Ho Ricco Tsang**

'So grateful to know such good news! Thank you for the offer and your great support. Can't wait to embark on the new journey.' **Wai Shan Ho (Sandy)**

Building a legacy

Looking forward, the Geoffrey Ma Scholarships will continue to strengthen the University of Birmingham's relationship with Hong Kong. In the coming months, recipients will take part in pre-departure briefings, act as ambassadors and share their journeys through profiles, videos and events, all of which will play a role in future recruitment. The University of Birmingham Hong Kong Alumni Association will also support the scholarship programme by engaging prospective students and providing mentorship opportunities.

As the programme evolves, plans for 2024-2025 include potentially increasing the number of undergraduate awards, enabling a greater diversity of applicants. Through the Geoffrey Ma Scholarships, the University of Birmingham is not only offering financial aid but also building a legacy that will empower generations of Hong Kong students to realise their ambitions and positively impact the world.

The 2024 Hong Kong Global Futures Programme

This project is in collaboration with Common Purpose and The University of Hong Kong (HKU).

The University of Birmingham has reinforced its partnership with Hong Kong through this year's Global Futures Programme in collaboration with the University of Hong Kong (HKU). This initiative is pivotal for students, offering them the chance to immerse themselves in Hong Kong's vibrant culture while gaining vital global career experience. The collaboration aims to empower students by developing their leadership skills and cross-cultural knowledge, preparing them for the complexities of the global workforce.

For over sixteen years, this partnership has transformed the lives of more than 850 students. The flagship Global Futures Programme provides immersive, international experiences designed to equip students with the skills and confidence necessary to navigate an interconnected world.

Building on successful previous partnerships in Bangalore and Istanbul, this year's cohort returned to Hong Kong for further growth. The vibrant city provided a unique backdrop for students to step out of their comfort zones, adapt to new cultural contexts and gain invaluable work experience. Through professional engagements, cross-cultural collaboration and leadership challenges, participants developed essential skills in problem-solving, resilience and empathy — qualities critical for success in today's evolving job market.

Students engaged in work environments that required adaptability and cultural sensitivity, gaining first-hand experience in navigating local business practices and collaborating with international colleagues. The programme's structure, combining professional placements with intercultural training and workshops, developed technical skills, self-awareness and cultural intelligence. Many participants reported increased confidence, resilience and adaptability, enhancing their employability and expanding their professional networks.

The impact of the Global Futures Programme extends far beyond the four-week experience, serving as a catalyst for personal and professional development. Students returned with a renewed sense of purpose and a clearer understanding of the global job market, equipped with the skills necessary for diverse environments.

An evaluation reveals impressive results: 86% of participants would recommend the programme, while 92% feel better prepared to engage with diverse individuals. One participant noted the unexpected importance of emotional intelligence in leadership, emphasising its role in team inspiration and conflict management. This insight demonstrates the programme's value in developing essential leadership qualities.

The collaboration with Common Purpose in developing the Global Futures Programme has opened doors for student-led immersive opportunities, further enhancing employability skills across cultural boundaries.



Together, we look forward to continuing this impactful journey, empowering future global leaders.

Participant feedback



'What stood out to me was the incredible friendliness of everyone and how smooth and enjoyable the entire experience was. This supportive environment helped me come out of my shell and significantly boosted my confidence in speaking in front of large crowds, despite my usual shyness.'

Marwam Mumin, Social Sciences student



'When the guest speakers visited and talked about their journey and career path, it was very impactful hearing some of the adversities they endured and how they got to where they are now.'

Esuri Bandara, (BA Politics and International Relations, 2024)



'I got to know the Hong Kong culture and was pleasantly surprised by the orderliness and structure in the environment.'

Tracy Tayou-Temgoua, Law student



'I aim to be a leader in life, I genuinely feel like being a Group Coordinator especially has emphasised how much I aspire to do something big in my life! What stood out to me was the fact that I was able to meet so many people. Just being in Hong Kong and having many opportunities to hand was so nice. Something that also stood out to me was how open and nice everyone here on the programme has been. So inspirational, honestly!'

Hikmat Kazeem, Medicine and Health student



'One unexpected thing I learned from the programme was the importance of emotional intelligence in effective leadership. While I anticipated focusing on strategic planning, decision-making and management techniques, I was surprised to discover just how crucial emotional intelligence is in inspiring teams, managing conflicts and fostering a positive workplace culture — understanding and managing my own emotions, as well as being empathetic.'

Waqas Islam, Law student



Paving the way for a sustainable future

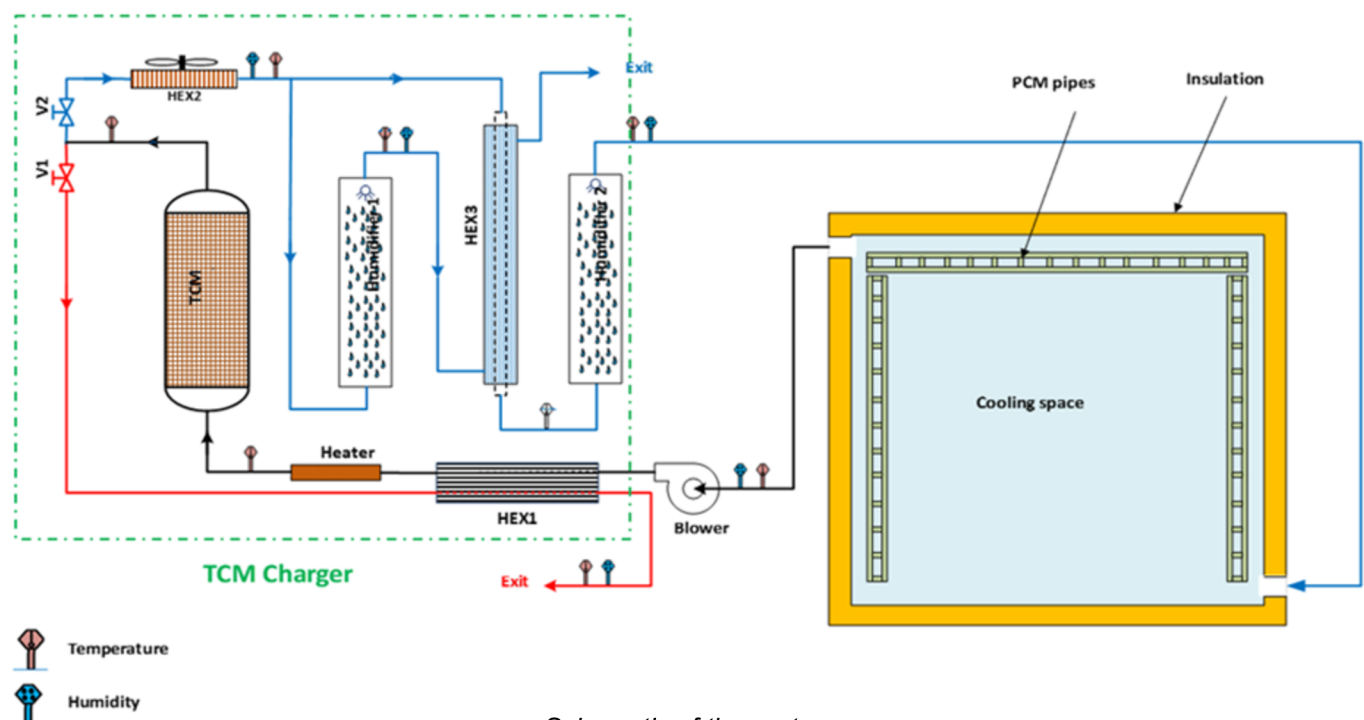
Professor Yulong Ding, Founding Chamberlain Chair of Chemical Engineering, in collaboration with The Hong Kong Polytechnic University (PolyU).

The global demand for cooling and cold chain logistics significantly contributes to climate change through carbon emissions and refrigerant leakage. Between 1990 and 2018, global cooling-related carbon emissions tripled to 1,130 million tonnes, with commercial refrigeration accounting for 12% of UK CO₂ emissions. Decarbonising the cold chain is a major challenge for achieving net zero by 2050, particularly as transportation in supply chains can account for 39-56% of emissions and costs. In Southeast Asia, the demand for refrigerated goods transport is notably high, primarily relying on diesel-powered reefer containers, which are environmentally harmful and costly.

This project aims to develop novel cold chain transportation technology focused on cooling decarbonisation in Hong Kong and the broader Southeast Asia region. The team is integrating two leading technologies: mobile cold energy storage using composite Phase Change Material (cPCM) and thermochemical refrigeration technology developed at Birmingham. Key objectives include designing and optimising the integrated system for the climate and building conditions of the region and conducting a techno-economic evaluation of the solution.

In the past year, the team have made significant strides in integrating and refining the experimental rig for the cold-chain technology. Initial tests have been conducted to evaluate system performance, marking key project milestones. Initial results indicate a substantial temperature decrease from 30°C to 9°C. The team are committed to commercialising this technology, having secured an industrial partner and filed a patent. Their goal is to seek additional funding to improve the system, scale it for commercial use and implement it in applications.

The support from the Hong Kong Foundation has been crucial in advancing this project, primarily covering costs for consumables and equipment. The team is grateful for the confidence in their work, without which this progress would not be possible.



Schematic of the system

Climate change and mental health in young people

Dr Stephanie Burnett Heyes and Dr Christian Chan (HKU, Tokyo ICU).

As climate change accelerates, its impact on young people's mental health has become a growing global concern. Young people are particularly vulnerable due to their developmental stages and the severity of the challenges they face. Dr Stephanie Burnett Heyes and Dr Christian Chan are leading efforts to understand and mitigate climate anxiety through research spanning the Hong Kong-Guangdong Greater Bay Area and the University of Birmingham. Their work seeks to build resilience and promote effective adaptation strategies for young people worldwide.

Their research comprises three interconnected studies:

- **Climate anxiety in Hong Kong:** Data collected from 700 university students explores relationships between climate anxiety and factors such as ecological grief, extreme weather experiences and self-efficacy. This study will validate the Climate Change Anxiety Scale (CCAS) in a cross-cultural context and provide insights into the psychological impacts of climate change.
- **Extending to the Greater Bay Area:** Building on findings from the first study, this research aims to compare climate anxiety across diverse cultural contexts in the Greater Bay Area, enhancing understanding of how local factors shape experiences of climate change.
- **Experimental psychopathology:** A novel experimental paradigm investigates how mental imagery of climate change influences emotional responses and anxiety symptoms. This study aims to identify cognitive risk mechanisms and potential therapeutic targets.

The team has made significant progress. In the first study, data collection is complete and analysis is underway, supported by an incoming research assistant specialising in statistical methods. For the second study, collaborations in the Greater Bay Area are being established to begin comparative research. Meanwhile, the third study has developed a new experimental framework, with data collection scheduled for the current academic year.

Alongside their research, the team is convening an international task force to prioritise youth mental health in climate adaptation strategies. This collaboration aligns global efforts to address the challenges posed by climate anxiety, which, while not formally recognised as a clinical disorder, shares symptoms with generalised anxiety and can significantly impair daily functioning. Young people, particularly those with pre-existing vulnerabilities, are at heightened risk as climate impacts intensify.

The next steps focus on completing the current studies within an international framework, using findings to inform psychological interventions and support future grant applications. By increasing understanding of climate anxiety and promoting collaboration, this work will contribute significantly to safeguarding youth mental health and building resilience in the face of a changing climate.

Bridging research and clinical excellence

Professor Deborah Falla, Chair in Rehabilitation Science and Physiotherapy, in collaboration with The Hong Kong Polytechnic University (PolyU).

The Centre for Precision Rehabilitation for Spinal Pain (CPR Spine) at the University of Birmingham has initiated a pivotal collaboration with Hong Kong Polytechnic University (PolyU) to develop research careers for physiotherapists and rehabilitation scientists in Hong Kong, aiming to elevate patient outcomes, efficiency and organisational performance as seen in the UK.

In the past year, the partnership has achieved key milestones, including starting a postgraduate exchange programme and carrying out an academic visit to PolyU. Through the support of the Hong Kong Foundation, Geoffrey Yu, a scholarship-funded student from Hong Kong, joined CPR Spine's unique MRes in Spinal Pain programme and his promising research will continue with a PhD starting in December 2024. A visit in June 2024 also allowed the CPR Spine faculty to present on spinal and musculoskeletal physiotherapy, sparking further research discussions and plans to host PolyU staff in Birmingham later this year.

The Hong Kong Foundation's support has been essential, enabling scholarship funding, staff exchanges and dedicated research workshops that have expanded collaboration and knowledge-sharing opportunities. The programme's main research focus on neck pain recurrence is expected to lead to international publications and conference presentations, advancing spinal pain research on a global scale. This collaboration is poised to strengthen future spinal rehabilitation research and educational exchanges, supporting excellence for practitioners in both Hong Kong and the UK.



'I would like to express my sincere gratitude to the Hong Kong Foundation for the funding and support to pursue academic excellence in the field of physiotherapy at Birmingham. It has been a very fruitful experience to take part in the programme and I am very grateful for the superb coaching from my supervisors: Professor Deborah Falla, Dr Sharon Tsang, Dr Janet Deane and Mr Michael Mansfield.'

Geoffrey Yu
MRes student funded by the Hong Kong Foundation



Collaborative meeting between the academic teams from the University of Birmingham and PolyU during the visit in Hong Kong, June 2024.

Empowering PE in Hong Kong

Professor Joan Duda, Professor of Sport and Exercise Psychology. This project builds on an initial three-year project with The Education University of Hong Kong (EduHK), funded by the Hong Kong Jockey Club Charities Trust, entitled 'Empowering Coaching HK'.

The Empowering PE in Hong Kong project emerged from a collaboration with the Education University of Hong Kong, building on the successful Jockey Club Empowering Coaching Project, which runs until December 2024. This initiative addresses the pressing need for enhanced coaching and teaching practices in physical education (PE) within Hong Kong schools, recognising the vital role PE plays as a compulsory subject for almost all students. The project aims to improve coaching methodologies and create positive youth engagement in sports. The specific objectives of the Empowering PE project include:

- Translating the Empowering PE training programme into Traditional Chinese.
- Tailoring training materials to better reflect the cultural context of Hong Kong.
- Supporting the licensing of background intellectual property for the project's duration.
- Training three tutors to deliver the programme.
- Conducting a pilot version of the training for secondary school PE teachers.
- Gathering feedback from participants to refine the programme for broader implementation.

Over the last year, the project successfully translated all foundational materials for Empowering PE into Mandarin and adapted them for Cantonese speakers. The three tutors who trained during the previous Jockey Club project were recruited to deliver pilot workshops for secondary PE teachers. These workshops, held in June 2024, engaged 26 teachers and reflected a diverse range of teaching experiences, from novice educators to those with over 20 years in the field. Evaluation forms completed by participants indicated that the workshops were well-received.



The evaluation indicated (see more detail on the next page):

- a highly positive learning experience for participants.
- attendees enjoyed the workshop and found the purposes clear, while the content challenged their teaching ideas and the theoretical and practical content was deemed relevant.
- participants appreciated the appropriate pace of the workshop and the balance between theory and practical application.
- tutors were found to be enthusiastic, creating an open atmosphere and allowing the PE teachers to express their opinions freely and engage in meaningful interactions.



Funding from the Hong Kong Foundation has been crucial for the project, covering essential expenses such as licensing, venue rental, tutor fees and materials. This support facilitated the pilot workshops and enabled the involvement of distance learning student Heidi Yip, who is pursuing a Master's degree while contributing to the project. Her research on secondary PE teachers' views on student motivation has directly informed workshop content and will lead to co-authored peer-reviewed publications.

Looking ahead, the Empowering PE project is poised for growth, with plans to seek further funding from the Hong Kong Jockey Club Charities Trust to expand its reach. With a robust network of PE teachers through the B.Ed. in Physical Education programme, the Department of Health and Physical Education at the University of Birmingham aims to establish Empowering PE as a continuous professional development (CPD) programme for PE teachers in Hong Kong. This initiative will strengthen partnerships with the Education Bureau and create new opportunities for collaborative research, ensuring ongoing improvements in physical education teaching for future generations.

Evaluation detail

The participants responded to a series of items on a scale from 1 to 5, where 1 indicates 'strongly disagree' and 5 indicates 'strongly agree.' This feedback mechanism helps us assess the effectiveness of the workshops and identify areas for improvement. The findings summarised below indicate that the Empowering PE pilot workshops were successfully delivered and very well received.

| The Learning Experience | | |
|---|-------------|-----------|
| | Mean | SD |
| <i>1. I enjoyed the workshop.</i> | 4.54 | 0.71 |
| <i>2. The workshop challenged some of my ideas about teaching.</i> | 4.23 | 0.91 |
| <i>3. The purposes of the workshop were clear to me.</i> | 4.73 | 0.45 |
| <i>4. The content of the workshop (i.e., central messages and strategies) was new to me.</i> | 4.35 | 0.85 |
| <i>5. I thought that the workshop theory (content delivered by the tutor) was appropriate and relevant for PE teachers.</i> | 4.73 | 0.45 |
| <i>6. I thought that the workshop activities (e.g., ABC Game, the practical) were appropriate and relevant for PE teachers.</i> | 4.58 | 0.70 |
| <i>7. The pace of the workshop was appropriate.</i> | 4.42 | 0.86 |
| <i>8. The balance between theory (content delivered by the tutor) and opportunities to apply the theory (group and practical activities) was appropriate.</i> | 4.42 | 0.70 |
| <i>9. The Empowering PE tutor was enthusiastic.</i> | 4.62 | 0.64 |
| <i>10. In this workshop, PE teachers felt free to express their opinions and feelings.</i> | 4.81 | 0.40 |
| <i>11. In this workshop, the tutor encouraged us (PE teachers) to ask questions and interact with him and other PE teachers.</i> | 4.577 | 0.64 |
| <i>12. I thought that the tutor's approach, in delivering the workshop, was empowering.</i> | 4.692 | 0.549 |
| Total Mean: | 4.56 | 0.65 |
| The evaluation of the workshops indicated a highly positive learning experience for participants. As a group, attendees enjoyed the workshop and found the purposes clear. The content challenged their teaching ideas and the theoretical and practical content was deemed relevant. Participants appreciated the appropriate pace of the workshop and the balance between theory and practical application. The tutors were found to be enthusiastic and created an open atmosphere. They allowed the PE teachers to express their opinions freely and engage in meaningful interactions, reinforcing the workshop's empowering approach. | | |

| Empowering PE Content | | |
|--|-------------|-----------|
| | Mean | SD |
| <i>13. As a result of this workshop, I now understand why adopting the Empowering PE approach might be beneficial for my students.</i> | 4.77 | 0.43 |
| <i>14. The workshop effectively explained and demonstrated how PE teachers could integrate the principles of Empowering PE into their own teaching.</i> | 4.46 | 0.65 |
| <i>15. As a result of this workshop, I would now like to commit to becoming a more Empowering PE teacher.</i> | 4.46 | 0.65 |
| <i>16. I understand how I could become a more Empowering PE teacher.</i> | 4.39 | 0.64 |
| <i>17. I feel confident that I could become an Empowering PE teacher when delivering PE lessons to my students.</i> | 4.27 | 0.72 |
| <i>18. I found the workshop helped me understand how to apply the principles of Empowering PE.</i> | 4.54 | 0.65 |
| Total Mean: | 4.42 | 0.66 |
| The evaluation revealed that the workshop facilitated a strong understanding and appreciation of the benefits of the Empowering PE approach. Participants recognised its value for their students and felt the workshop effectively demonstrated how to integrate its principles into their teaching. Many expressed a commitment to becoming more empowering teachers and, via the training, gained confidence in their ability to apply these principles in their lessons. | | |

Collaborative research on nasopharyngeal carcinoma and immune response

Dr Graham Taylor, Senior Lecturer in Tumour Immunology, Institute of Immunology and Immunotherapy, in collaboration with The Chinese University of Hong Kong (CUHK).

Nasopharyngeal Carcinoma (NPC) is an unusual type of head and neck cancer, primarily prevalent in Southeast Asia. It is notably linked to the Epstein-Barr virus (EBV), which plays a critical role in NPC development. Despite immune cells heavily infiltrating NPC tumours, they respond poorly to recent immunotherapies.

Researchers at the University of Birmingham are collaborating with NPC experts at the Chinese University of Hong Kong to characterise NPC tumours. The primary focus is on understanding EBV's role, the impact of genetic mutations on tumour composition and the status of various immune cells in relation to cancer cells. Ultimately, the aim is to enhance cancer immunotherapy efficacy.

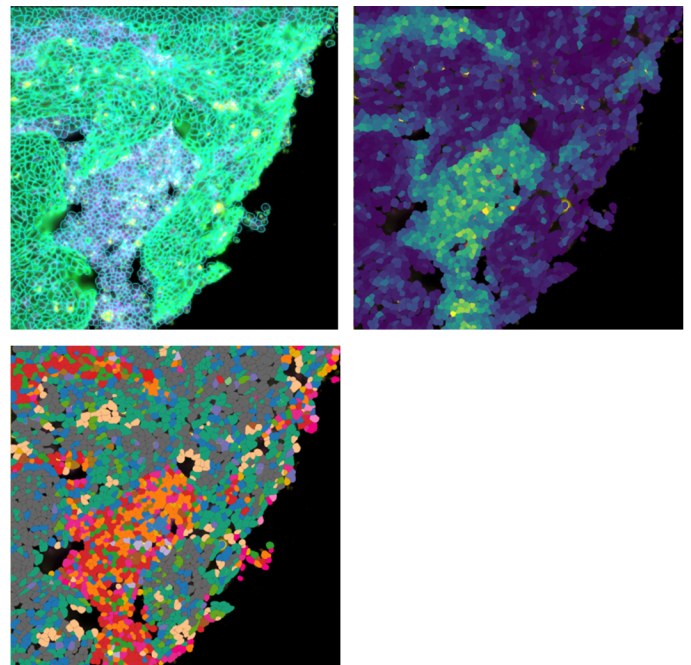
Utilising cutting-edge spatial biology technology recently acquired at Birmingham, Dr Taylor and his team can analyse the activity of 1,000 genes within millions of individual cells across multiple tissue samples. This level of detail marks significant progress in our understanding of NPC.

In the past year, the team established the necessary legal and ethical permissions for transferring human tissue from Hong Kong to the UK. The first batch of NPC tumour samples has been sent to Birmingham and analysed using the Nanostring CosMX spatial molecular imager and a second batch will be sent for analysis in November. Coordinating this international effort involves complex logistics, as the tissue must be processed in Hong Kong before being shipped cold to the UK for timely analysis.

The Hong Kong Foundation's support has been crucial, enabling the first collaborative research between the Birmingham and Hong Kong teams. This partnership is expected to lead to further studies based on the scientific insights generated.

The analysis yields enormous amounts of data that require advanced processing capabilities. The team is utilising the University's supercomputer, BlueBEAR and applying machine learning algorithms to investigate why NPC tumours evade immune system eradication, aiming to develop better treatments for patients. This data will be invaluable for future research questions as they arise.

The team are immensely grateful to the Hong Kong Foundation for supporting this vital research.



Four different views of a small section of NPC tumour (0.5mm x 0.5mm)

Top left
Green cells are non-cancer tissue. The cancer is coloured purple.

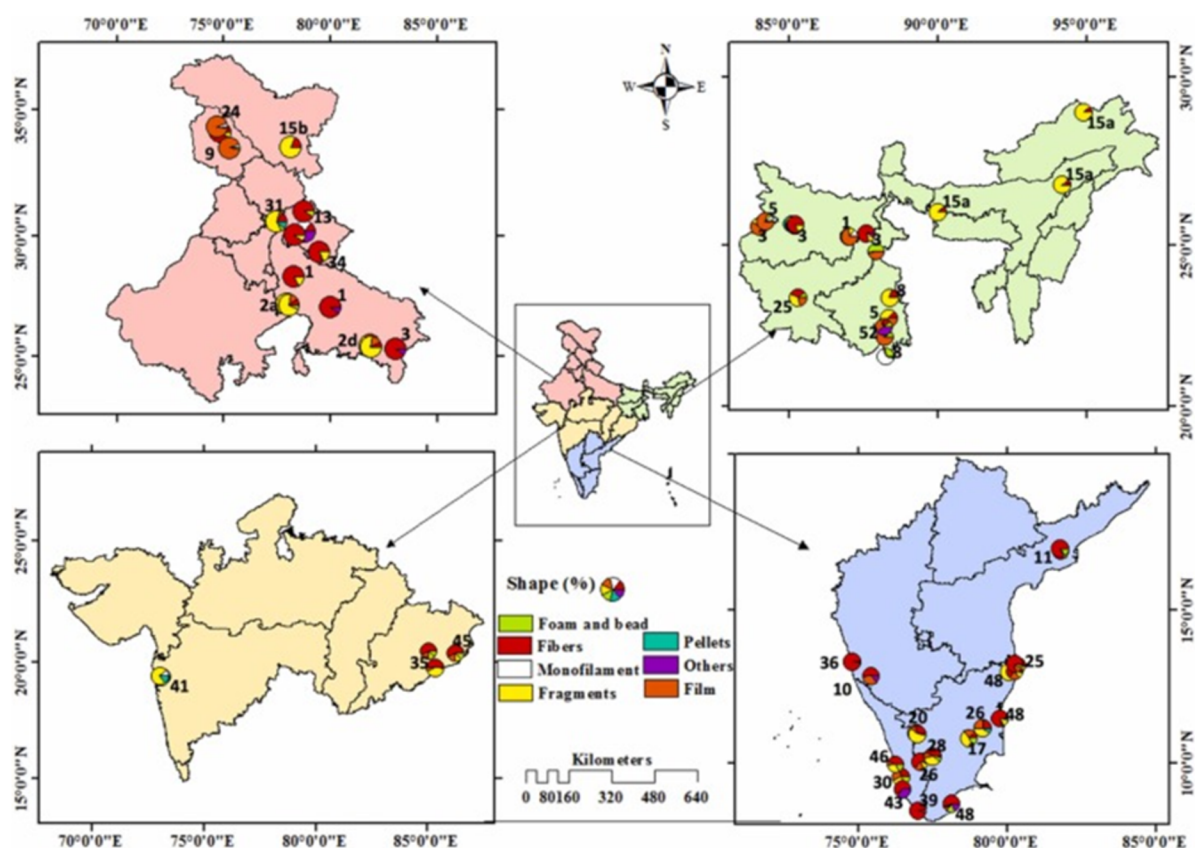
Top right
Classification of the tissue into cancer (dark blue) and non-cancer (green/yellow).

Bottom left
Sub-classification of the different types of immune cells based on their gene expression patterns (red/orange).

Mapping microplastics

Professor Iseult Lynch, Professor of Environmental Nanosciences; Professor Stefan Krause, Professor of Ecohydrology and Biogeochemistry, working in collaboration with The University of Hong Kong (HKU).

Microplastics (MPs) are a global pollutant with a significant impact on marine and freshwater ecosystems. This project focuses on river systems and contributes to the global understanding of MP distribution using citizen science participants who collect samples following established protocols. The samples are analysed using standardised methods, including several from major rivers in Hong Kong. This work is part of the overarching 100 Plastic Rivers project, which addresses the critical issue of plastic pollution, with production projected to rise from 360 million tons to 2,000 million tons by 2050. The environmental impact is already evident, with plastic uptake observed in fish, birds and other wildlife.



An example of the approach is shown in Figure 1 above, which highlights the differences in dominant MP shapes in surface water and sediment in India. Fibres were most common in surface waters, while fragments dominated sediments due to higher density.

Through funding from the Hong Kong Foundation, additional sampling in the Hong Kong and Guangdong regions focused on groundwater, enhancing spatial and temporal resolution beyond the snapshot citizen science approach. Collaborating with Professor Yan Zheng from the Southern University of Science and Technology (SUSTech) in Shenzhen, the sampling phase is complete, with analysis underway.

Achievements to date

A joint PhD studentship between Birmingham and SUSTech has been established and groundwater samples have been collected from 20 wells across the region, representing varied aquifers. The samples, taken at depths of <100m or >100m, revealed significant MP contamination. The analysis identified diverse MP types, including polypropylene, tyre-wear particles and unidentified polymers, with variations across aquifers (see Figure 2 on the next page).

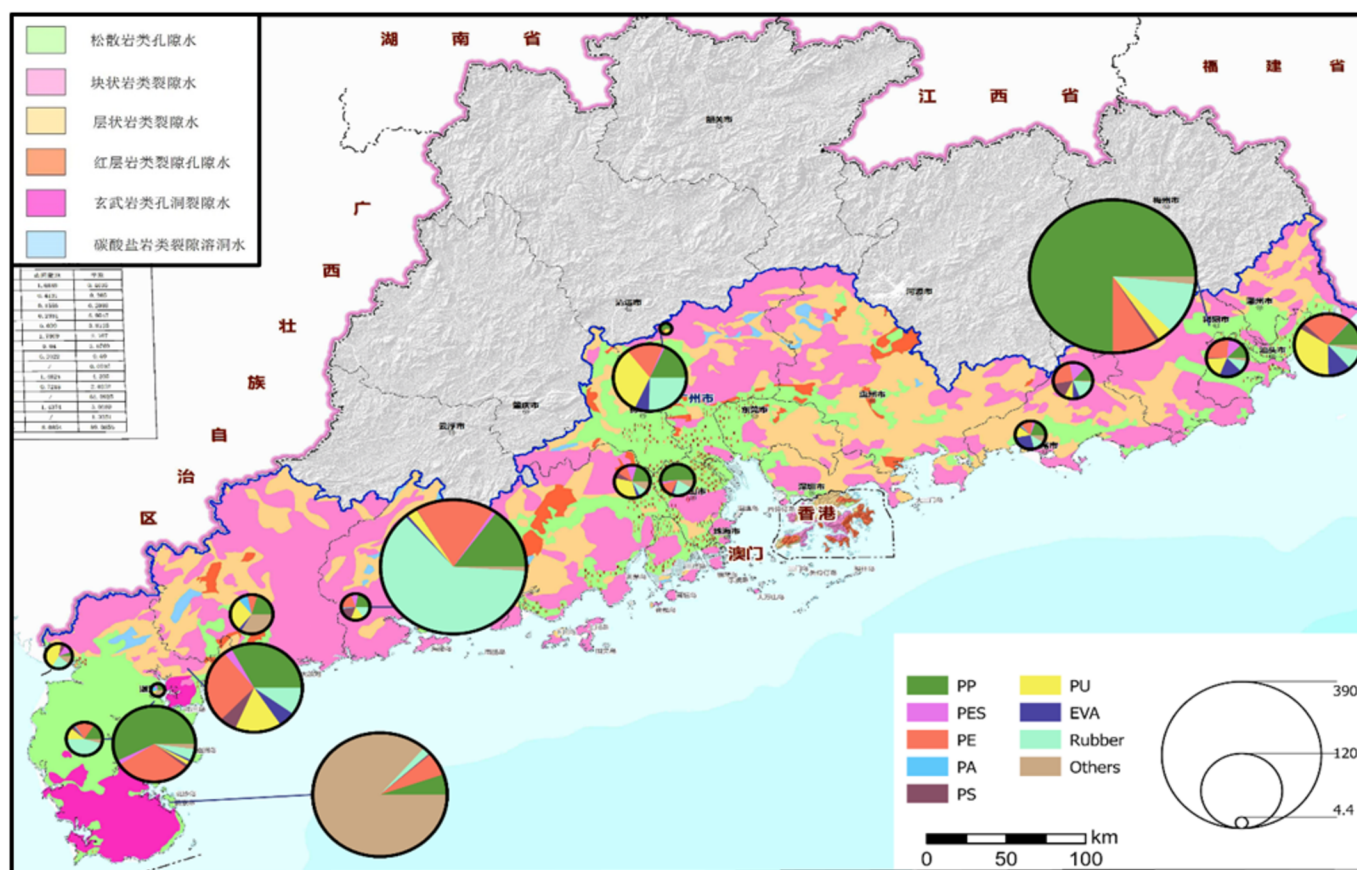


Figure 2: Summary of the total numbers of microplastics determined from groundwater (aquifer) samples across Guangdong province. The size of the circle indicates the number of MPs determined (from 4.4 to 390 MP particles / sample) and the polymer types are indicated by colour. PP: Polypropylene; PES: Polyethersulfone; PE: Polyethylene; PA: Polyamide; PS: Polystyrene; PU: Polyurethane; EVA: poly(Ethylene-vinyl acetate); Rubber: generally tyre-wear particles; Others – compositions different to those listed here.

Funding has supported a global understanding of MPs in freshwater, adding a crucial groundwater component. The lab at Birmingham has facilitated sample collection from over 30 countries, processing over 1,500kg of sediment and sampling over one million litres of river water. Results are in advanced stages of preparation for submission to *Nature Water*, acknowledging the Foundation's support.

The appointment of Bridge Fellow Dr Sophie Comer-Warner, a biogeochemist specialising in MP pollution, has been a valuable addition. Dr Comer-Warner's expertise links aquatic ecosystems, examining MP impacts alongside carbon and nitrogen cycling. The pyrolysis instrument, at the University of Birmingham, co-funded by the Foundation, is now operational, enhancing analytical capabilities.

The Foundation's flexible funding has been invaluable, enabling activities that would not have been possible otherwise. The ability to stagger spending proved critical in overcoming external challenges, including COVID-19 and geopolitical factors. This work advances international understanding of MPs, recognised as a growing environmental concern and complements projects like PlasticUnderground, broadening global comparisons and insights.

Future directions

Building on the methodologies and collaborations established, the project will expand its international network and apply targeted regional funding models demonstrated by the Hong Kong Foundation. This approach has already unlocked opportunities for focused research in India, Sweden and Africa, laying a foundation for future innovation and understanding of MP pollution.

Warm thanks are extended to the Hong Kong Foundation for its generous support, enabling meaningful advancements in this critical area of research.

Making your gift

We invite you to join our Founding Donors by making a gift that will support Birmingham in Hong Kong. 100% of your donation will go to charitable projects at the University.

Whether you want to make a single gift or a multi-year donation, you can direct how your gift is used. You may choose to either:

- Leave your gift to be allocated to the area of 'greatest priority' by the Board of Directors. This enables the Foundation to respond to needs and opportunities quickly.
- Make a larger gift to support a specific area of the University's work, such as scholarships, your old College, Department or School or an area of our research that interests you. To discuss a bespoke gift, please contact giving@contacts.bham.ac.uk.

How to make your gift

You can choose to make your gift to support the Foundation in the following ways:

- Complete a donation form and send it with a cheque, postal order or bank draft, payable to the University of Birmingham Hong Kong Foundation Ltd at 804, 8/F, Tesbury Centre, 28 Queen's Road East, Wan Chai.
- Send a bank transfer. Please contact giving@contacts.bham.ac.uk if you intend to give in this way. They will send a donation form for you to complete, ahead of your transfer, with the full bank details.
- With stocks or shares. Please contact giving@contacts.bham.ac.uk if you intend to give in this way.

Giving tax efficiently

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A thank you from the Vice-Chancellor



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The Geoffrey Ma Scholarships and mobility programmes are a great example of how we can work together to ensure that students from all backgrounds can thrive, while developing meaningful exchanges between our communities. The research initiatives supported through the Hong Kong Foundation — particularly in healthcare, environmental sustainability, and social enterprise — are driving innovative solutions to some of the most pressing challenges facing our societies today.

Your commitment to advancing education and research demonstrates the power of collaboration to deliver meaningful, lasting impact. Thank you for your continued support and for being part of this shared journey. Together, we are building a legacy of innovation, leadership, and global partnership that will benefit future generations in Hong Kong, Birmingham and beyond.

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