Lingnan University 2025/2026 SDG Report
SDG 13 – CLIMATE ACTION



17.09%
Reduction in Carbon Emission (Scope 1 & 2)

59
Undergraduate Courses

317
Research Outputs

83%
Internationally Collaborated Papers

Lingnan University advances **SDG 13: Climate Action** by integrating climate awareness and sustainability education into its liberal arts learning environment. Through interdisciplinary programmes, hands-on practicum experiences, interactive science activities and inter-university collaboration, students develop the knowledge and skills to respond to climate challenges. These opportunities foster global competence, civic responsibility and informed action, preparing students to contribute to a more sustainable and climate-resilient future.

Climate Policy, Green Innovation and Financial Market Stability

Led by Professor Michal Wojewodzki, Associate Professor of Teaching in Lingnan University's Department of Finance, this research supports SDG 13: Climate Action by exploring the intersection of climate policy, corporate green innovation and financial market stability. As Lingnan advances its Climate Action Plan, the research examines how regulatory environments and market mechanisms drive the transition to a sustainable, low-carbon economy.

The research highlights the critical role of stable climate policies in fostering corporate sustainability. Findings on the Paris Agreement reveal that corporate research and development (R&D) investments significantly enhance firms' ability to align carbon emissions reductions with financial profitability. However, this positive moderating effect diminishes during periods of climate policy instability, such as the U.S. withdrawal from the Paris Agreement, underscoring the importance of consistent regulatory frameworks for green innovation.

Analysis of climate policy uncertainty (CPU) and geopolitical risks also demonstrates

that CPU has a prolonged and diffuse impact on energy market volatility. These findings emphasise the need to accelerate the global transition to renewable energy and strengthen climate risk management and energy resilience.

The research also investigates market-based solutions, including Emissions Trading Schemes (ETS). A bibliometric analysis reveals growing global interest in how these schemes promote renewable energy innovation. Evidence from China's ETS pilot projects generally supports the Porter hypothesis, suggesting that well-designed environmental regulations can stimulate technological innovation rather than merely impose compliance costs.

Together, these studies provide actionable insights into how consistent climate policies, strategic R&D investments and robust emissions trading frameworks can accelerate global decarbonization. The research reinforces Lingnan University's commitment to sustainability and offers empirical evidence to inform climate policy and low-carbon investment decisions in an increasingly uncertain global market.

Advancing Space-Based Greenhouse Gas Monitoring for Climate Action

In support of SDG 13: Climate Action and global climate governance, Professor Li Jia, Associate Professor (Presidential Early Career Scholar) at Lingnan University's Wu Jieh Yee School of Interdisciplinary Studies, has built and optimized a professional carbon database to facilitate high-precision space-based greenhouse gas monitoring. This database serves as the core data foundation for MUSICO, also known as the Tianyun Camera, Hong Kong's first scientific payload operating on China's Tiangong Space Station.

MUSICO is the world's first compact, high-resolution detector designed for synchronous observation of carbon dioxide and methane, two major greenhouse gases driving global climate change. Deployed via the Tianzhou-10 cargo spacecraft, the instrument delivers accurate orbital detection of atmospheric gas concentrations and localized emission sources, supporting emissions monitoring and source identification.

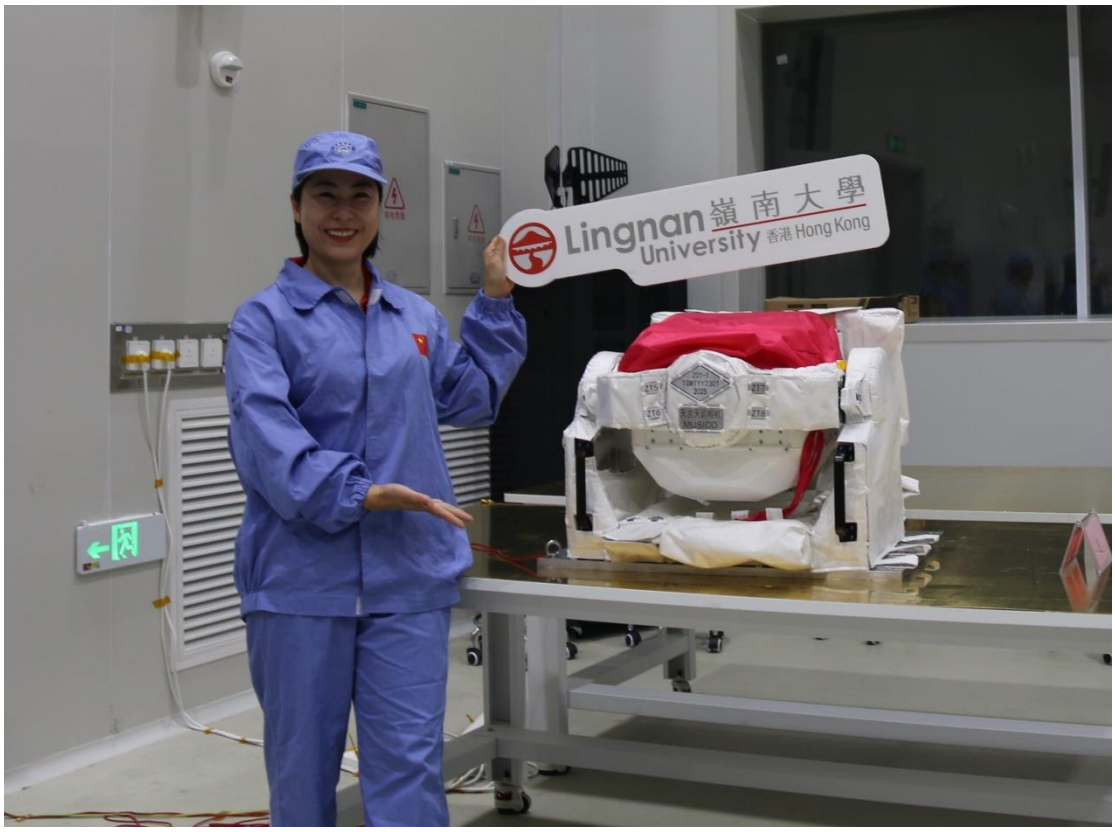
Professor Li's structured database integrates standardized atmospheric baseline data, historical emission records and terrestrial validation datasets. It calibrates real-time spectral readings, corrects orbital observation deviations and improves the precision of global greenhouse gas inversion and emission tracing. This strengthens data reliability, scientific validation and evidence-based climate monitoring.

The synergy between MUSICO and Professor Li's data framework supports continuous in-orbit monitoring and stable, long-term climate surveillance across global mid- and low-latitude regions, enhancing understanding of greenhouse gas distributions and emission patterns.

This data-driven initiative provides scientific evidence for carbon accounting, climate

trend analysis and low-carbon policy formulation. By enhancing the reliability of space-based climate observation and strengthening global climate data transparency, the project provides technical support for climate mitigation and sustainable environmental governance, aligning with SDG 13's objectives to combat climate change.

Alongside this research, Professor Li teaches ESG536 Green Finance and Investment, complementing her contributions to climate monitoring with education in sustainable finance. Together, these research and teaching activities reflect her engagement with climate action and the transition towards a low-carbon economy.



<u>Advisory Services for Hong Kong Power Sector's Participation in the Southern China Carbon Capture, Utilisation and Storage (CCUS) System</u>

Undertaken by Professor LI Jia, Associate Professor at Lingnan University's Wu Jieh Yee School of Interdisciplinary Studies, this advisory project examines how Hong Kong's power sector could participate in regional carbon capture, utilisation and storage (CCUS) infrastructure in Southern China. Scheduled from August 2025 to February 2026, the project focuses on assessing potential CO_2 storage sites in Guangdong, comparing pipeline and shipping options, and developing commercial and cost models. It aims to provide a strategic participation roadmap aligned with CLP's decarbonisation strategy and regional CCUS development timelines.

SDG 7 – Affordable and Clean Energy

The project supports power sector decarbonisation by exploring how Hong Kong's electricity generation sector could access regional CO_2 transport and storage infrastructure. Its assessment of technical feasibility and costs aims to inform commercially viable approaches to reducing power-sector emissions, contributing to the transition towards lower-carbon electricity generation.

SDG 9 – Industry, Innovation and Infrastructure

The project supports the planning of cross-border low-carbon infrastructure, including CO_2 pipelines, shipping routes and geological storage facilities. By evaluating infrastructure requirements, storage capacity and commercial arrangements, it aims to inform the development of regional CCUS networks and strengthen the evidence base for sustainable industrial infrastructure investment.

SDG 13 – Climate Action

The project explores potential pathways for large-scale carbon emissions reduction through Hong Kong's participation in regional CCUS hubs. Its technical, regulatory and economic assessments will inform a strategic roadmap for participation between 2025 and 2040, supporting evidence-based climate mitigation planning and alignment with regional decarbonisation efforts.

SDG 17 – Partnerships for the Goals

The project supports cross-border collaboration among CLP Power Hong Kong Limited, Guangdong CCUS stakeholders, China Southern Power Grid, academic and geological experts, and relevant government and regulatory agencies. By examining shared infrastructure, business arrangements and regulatory requirements, it aims to facilitate coordination between Hong Kong and Guangdong in pursuit of shared climate objectives and regional low-carbon development.

Monitoring Greenhouse Gas Emission Point Sources From China Space Station

With Professor LI Jia, Associate Professor at Lingnan University's Wu Jieh Yee School of Interdisciplinary Studies, participating in the research collaboration, this project aims to develop a greenhouse gas monitoring system using observations from the China Space Station and related satellite platforms. Running from August 2025 to August 2028, it will combine space-based observations, data analytics, ground-truth verification and blockchain technology to identify and quantify emission point sources and provide secure, transparent and traceable emissions data.

SDG 7 – Affordable and Clean Energy

The project aims to provide reliable greenhouse gas emissions data that can inform clean energy transition strategies. By identifying emission sources and analysing

trends, it could help policymakers and industry stakeholders assess emissions associated with energy use and prioritise opportunities for lower-carbon energy systems.

SDG 9 – Industry, Innovation and Infrastructure

The project advances space-based environmental monitoring and secure digital infrastructure by integrating satellite observations, data analytics and blockchain technology. Its planned data-processing framework and geospatial visualisation platform will support the development of innovative tools for emissions monitoring, while blockchain integration aims to strengthen data integrity, transparency and traceability.

SDG 13 – Climate Action

The project aims to strengthen the capacity to identify, quantify and track greenhouse gas emissions, supporting evidence-based climate mitigation and carbon reduction strategies. By combining space-based observations with ground-truth verification, it seeks to provide validated emissions data for regulatory monitoring and compliance assessment, with potential future applications in carbon credit verification.

SDG 17 – Partnerships for the Goals

The project brings together expertise from Lingnan University, the Hong Kong University of Science and Technology, Hong Kong Baptist University, and the Technology and Engineering Center for Space Utilization of the Chinese Academy of Sciences, with support through the Innovation and Technology Commission's Innovation and Technology Support Programme. This cross-institutional collaboration combines capabilities in space technology, environmental monitoring and digital systems to advance climate technology development and support shared sustainable development goals.

Media Sentiment on Corporate Climate Action and Business Performance: Insights from FTSE 100 Firms

This study, with contributions from Prof Liane W. Y. Lee, Associate Professor of Teaching in the Department of Management, examines whether media coverage of climate change action by FTSE 100 firms is associated with business performance in the following year. It relates to SDG 13: Climate Action, highlighting the relationship between corporate climate engagement, stakeholder perceptions and business performance.

Drawing on 406,052 news articles published between 2013 and 2022, the study adopts a novel bibliometric keyword-extraction approach to identify the valence of SDG 13-related coverage of these firms. A dynamic panel model estimated using the generalized method of moments estimator shows that adverse SDG 13 media coverage

of a firm is negatively associated with its sales, net profit and Tobin's Q. In contrast, positive coverage is associated with improved sales and Tobin's Q.

Viewed through the lens of integrated thinking as a holistic framework linking institutional and stakeholder theories, the findings suggest that SDG 13-related media coverage is associated with corporate reputation and performance. The study highlights the relevance of climate-related communication and stakeholder engagement to understanding how corporate climate action is perceived and its association with business outcomes. Several implications are drawn from the study, alongside avenues for future research.