

Lingnan University 2024/2025 SDG Report

SDG 11 – SUSTAINABLE CITIES AND COMMUNITIES



164
Undergraduate Courses



440
Research Outputs



226
Projects and Grants



3.4
Field Weighted Citation
Impact

Lingnan University is deeply committed to advancing SDG 11 – Sustainable Cities and Communities by integrating sustainability, inclusivity, and resilience into its research, education, and community engagement. Through interdisciplinary teaching, applied research, and partnerships with government, industry, and NGOs, Lingnan addresses pressing urban challenges such as housing, ageing, energy efficiency, and cultural preservation. The University’s wide-ranging initiatives—from developing smart city technologies and age friendly environments to promoting sustainable arts, heritage, and community collaboration—reflect its mission to create liveable, equitable, and environmentally responsible cities. By nurturing future leaders and fostering innovative, community centred solutions, Lingnan University continues to contribute to building sustainable urban futures for generations to come.

Lingnan Showcases Smart Healthy City Innovations at InnoCarnival 2025

At InnoCarnival 2025, Lingnan University demonstrates its leadership in applying AI and interdisciplinary research to real-world challenges through eight pioneering projects under the theme “Smart Healthy City.” From AI-powered sports training and mosquito disease control to smart ageing solutions, carbon capture technology, and data-driven urban mobility, these innovations highlight Lingnan’s vision of integrating technology with community well-being. By combining creativity, research, and public engagement, Lingnan continues to drive the development of a smarter, healthier, and more sustainable city for the future. [\[Link\]](#)



Nurturing Future Leaders in Urban Sustainability

As urbanisation accelerates worldwide, cities face mounting challenges such as environmental change, an ageing population, rapid migration, and technological transformation. In response, Lingnan University launched the Master of Cities and Governance (MCG) programme in 2020, later introducing a concentration in Environment and Sustainability. The programme equips students with analytical and practical skills to address urban management issues, strengthen governance, and produce research that informs public policy.

The MCG programme adopts an interdisciplinary and experiential approach, combining theory with practice through internships and joint projects with local governments and NGOs. Students explore fields including resource management, community planning, and policy analysis, ensuring holistic preparation for careers in urban leadership and sustainability.

Lingnan also offers a Digital and Smart Governance concentration under the Master of Comparative Public Administration, which prepares future public administrators to handle digital transformation. The programme focuses on data analytics, technology management, and digital strategy, reflecting the growing importance of smart governance in sustainable urban development.

Furthermore, the Master of Housing Policy and Management (MHPM)—accredited by the Chartered Institute of Housing (CIH) in 2024—trains professionals to promote safe, inclusive, and sustainable urban environments, aligning with SDG 11.1 on affordable housing and SDG 11.6 on reducing cities' environmental impact.

Complementing these initiatives, the Master of Arts in Arts and Cultural Heritage Management (MAACHM) supports SDG 11.4, emphasizing the sustainable

preservation of cultural heritage. It prepares students to innovate within the cultural and creative sectors while safeguarding community heritage for future generations.

Through these forward-looking academic programmes, Lingnan University cultivates future leaders who combine innovation with social responsibility—driving sustainable urban development and enhancing the quality of life in cities around the world.

Advancing age-friendly cities

Lingnan University is committed to advancing SDG 11 – Sustainable Cities and Communities by promoting age-friendly and inclusive urban development. Through research, education, and community collaboration, the University supports initiatives that empower older adults and foster intergenerational understanding.

On 2 August 2025, the School of Graduate Studies participated in the *Co-Creating the Future of Ageing Forum*, organised by the Federation of Hong Kong and Kowloon Labour Unions. A faculty representative shared insights on silver productivity, emphasising the importance of empowering older adults to remain active in the workforce and contribute their experience and skills to society. This aligns with the Hong Kong SAR Government’s promotion of the silver economy, recognising older adults as key drivers of community and economic vitality.

Lingnan provides opportunities for master’s students in health-related programmes to engage with community issues, fostering intergenerational dialogue and mutual learning. These experiences not only enhance students’ understanding of ageing issues but also empower seniors by valuing their perspectives and lived experiences.

The University has also implemented a Gerontech Ambassadors Training Programme, integrating technology to enhance seniors’ independence and wellbeing. Through workshops and digital training sessions, participants learn to use modern tools that improve daily living, reduce isolation, and promote social connection. This community-based initiative showcases Lingnan’s leadership in applying innovation to meet real-world social needs.



The Lingnan University team and other top teams receive their certificates.

In addition, on 26 April 2025, the School of Graduate Studies hosted the *Health and Wellbeing Symposium* themed *Best Practices for Promoting Healthy and Age-Friendly Cities*. The event brought together over 130 academics, practitioners, and students from various regions to exchange ideas on building inclusive, age-friendly urban environments.

Lingnan University remains dedicated to creating cities that value the contributions of older adults and ensure dignity, inclusion, and sustainability for all generations.

Enhancing Energy Efficiency in Urban Infrastructure

Lingnan University is leading efforts to improve energy efficiency in Hong Kong's commercial buildings, advancing SDG 11 – Sustainable Cities and Communities. The School of Data Science has developed an artificial intelligence (AI) model that accurately predicts cooling loads, enhancing building energy efficiency and reducing carbon emissions. This innovation earned the Gold Award in the *Artificial Intelligence Model Development* category at the *Global AI Challenge for Building E&M Facilities 2025*, highlighting Lingnan's excellence in applying AI to sustainable urban design.

The AI model is designed to optimise energy use in commercial buildings by supporting more precise and adaptive management of cooling systems. Accurate prediction of energy demand enables building managers to minimise waste, lower operational costs, and reduce the environmental footprint. This technology directly contributes to urban sustainability and the transition toward a low-carbon economy.

To further advance smart building and low-carbon initiatives, Lingnan University has partnered with Shenzhen Das Intellitech Company Limited, signing a

Memorandum of Understanding to establish a joint research laboratory focused on sustainable, carbon neutral technologies. The collaboration aligns with China's national goal to reach peak carbon emissions by 2030 and strengthens industry–academia synergy to drive green innovation.

The new research laboratory will serve as a collaborative hub, bringing together researchers, industry practitioners, and policymakers to explore practical solutions for sustainable urban development. By integrating AI, data analytics, and environmental science, the partnership aims to transform energy management systems across the region.

Through these initiatives, Lingnan University is not only addressing immediate energy efficiency challenges but also laying the foundation for smarter, more sustainable, and resilient cities that prioritise environmental stewardship and the well-being of their residents.

Addressing Housing Challenges and Improving Living Standards

Housing inadequacy in Hong Kong—marked by overcrowding and poor living conditions—highlights the urgent need for sustainable urban development under SDG 11 – Sustainable Cities and Communities. Improving housing quality, access to services, and urban infrastructure is essential for enhancing residents' well-being and building more inclusive, resilient cities.

On 17 January 2025, Lingnan University took a meaningful step toward its sustainability goals by hosting a charitable event at the transitional housing facility *Good Mansion* in Hung Hom. The University donated more than 600 units of the PureAura mini air purifier—a humanitarian technology developed by the Lingnan Entrepreneurship Initiative—to residents of the facility operated by the local NGO SideBySide. The initiative aimed to improve indoor air quality and living conditions for grassroots families, offering care and support ahead of the Lunar New Year.

This donation embodies Lingnan's motto of *Education for Service* and reflects its commitment to social innovation and community well-being. The 600 units were funded through charitable sales during the *Kingrich Charitable Foundation Presents: Lingnan University Gala Dinner 2024*, where guests purchased air purifiers for donation—demonstrating a shared commitment to public good.

PureAura was specifically designed for subdivided flats in Hong Kong and other high density cities, integrating cutting-edge design with humanitarian purpose. It has earned 14 international design awards, including the iF Design Award, often regarded as the “Oscars of design.” This innovation directly addresses environmental and health challenges in compact living spaces while contributing to sustainable urban living.

Alongside these engineering solutions, Lingnan researchers continue to explore housing policy, socioeconomic factors, and institutional challenges shaping urban

development. Their evidence-based research aims to inform policymakers and promote long-term improvements in housing quality—reinforcing Lingnan’s dedication to building better, more sustainable communities.

Revitalising cultural heritage for future generations

Lingnan University, in collaboration with the Hong Kong Art School, launched the Jockey Club ICH+ Innovative Heritage Education Programme to revitalise Hong Kong’s intangible cultural heritage (ICH). Since its inception, the programme has engaged more than 15,800 students, integrating contemporary art methods with traditional craftsmanship to foster cultural sustainability and preserve heritage for future generations.

The ICH+ programme bridges traditional and modern practices, encouraging students to explore and appreciate the cultural narratives shaping their identities. Through hands-on learning in crafts such as bamboo scaffolding, cheongsam making, Canton porcelain painting, seal carving, and Shiwan ceramic sculpture, students develop both artistic skills and deeper cultural understanding. This approach enhances creativity while promoting the preservation and reinterpretation of heritage in modern contexts.

Now in its second phase, launched in June 2023, the programme continues to broaden its reach by introducing new ICH project courses each year. For the 2024–25 academic year, five new courses will invite participation from secondary schools across Hong Kong, engaging students from diverse backgrounds to build a shared sense of pride and connection to local culture.

Beyond the classroom, the ICH+ programme strengthens community collaboration by partnering with local artisans and cultural practitioners. Students learn directly from experts about the significance of traditional crafts and the challenges faced in sustaining them. These partnerships enrich the educational experience and reinforce ties between Lingnan University and the wider community.

Widely recognised by educators and cultural leaders, the programme highlights Lingnan’s commitment to SDG 11 – Sustainable Cities and Communities through the safeguarding of cultural diversity. By inspiring young people to preserve and innovate within Hong Kong’s living traditions, Lingnan University contributes to building a more sustainable, inclusive, and culturally vibrant future.

Applied Research Projects:

Lingnan University contributes to the achievement of the SDG11 through applied research projects such as

1. Intelligent information-based transport system for smarter traffic and safer mobility (Smart Traffic Fund)

2. Social tourism in later life: Unlocking the potential of public transport to facilitate social participation of older adults (MTR Research Fund)
3. Creating an age-friendly MTR system: Sensory challenges, walking environments and wellbeing of the elderly MTR users (MTR Research Fund)
4. Can Care Infrastructures Alleviate Housing Precarity? A Comparative Case Study of Three Community Living Rooms in Hong Kong (RGC's General Research Fund)
5. Looking back at UNESCO Asia-Pacific Heritage Awardees and non-recipients: Review of heritage conservation cases from an IAD lens (RGC's General Research Fund)
6. How unaffordable is Hong Kong's housing market? (RGC's General Research Fund)
7. The third way of housing production: A history of housing cooperatives in post-war Hong Kong, 1940s–1980s (RGC's General Research Fund)
8. Gendering informal housing: Intersectional inequalities and the resilience of families living in subdivided units in Hong Kong (RGC's General Research Fund)
9. Cultivating worker communities among themselves: digital technologies, platform workers, and participatory culture in China (RGC's General Research Fund)
10. "Waste commons" in motion via Hong Kong's Light Rail Loop: Exploring the multiple routes for community-oriented food waste management (RGC's Early Career Scheme)
11. Research on Shenzhen Metro passenger flow big data dimensionality reduction real-time modeling, congestion alarming and smart commuting methods (Shenzhen Science and Technology Innovation Commission)
12. Study of hybrid RL-VQ driven multimodal time-series intelligence for sustainable IoT energy conservation and low-data fintech predictive analytics (LU's Research Committee)
13. Exploring the spatiotemporal patterns and economic impacts of road traffic accidents of Hong Kong (LU's Research Committee)
14. Multiresolution Taxi Demand Prediction using Spatiotemporal Graph Neural Networks (LU's Research Committee)
15. Beyond Four Walls: Community Living Rooms and Neighborhood Filtering in Hong Kong's Subdivided Housing Communities (LU's Research Committee)
16. Asymmetrical Adaption of Seller's Expectation in Housing Market (LU's Research Committee)
17. Generating controllable and multimodal autonomous driving scenes (LU's Research Committee)
18. Robust Volatile Traffic Demand Prediction: When deep learning meets mobile crowdsensing (LU's Research Committee)
19. Spatial interaction and spread of COVID-19 through transportation network: A study of Hong Kong (LU's Research Committee)
20. Envisioning the future of public transport interchange (LU's Research Committee)
21. Rural revitalisation at the grassroots (LU's Research Committee)
22. Longitudinal impact of green space on older adults' health and wellbeing: A case study in Guangdong (LU's Research Committee)

23. The impact of climatic and environmental factors on the spatial and temporal distribution of dengue risk in Hong Kong (LU's Research Committee)
24. Towards a model of sustainable management of country park enclaves in Hong Kong (LU's Research Committee)
25. Towards age-friendly transportation: Uncovering and addressing barriers to mobility for older adults in China (LU's Research Committee)
26. An emerging dimension of family life in urban China - Examining the roles of companion animals (LU's Research Committee)
27. The ecotranslation of sinophone cities (LU's Research Committee)
28. The future of Advanced Air Mobility (AAM) in the Greater Bay Area: Expert projections and perspectives (LU's Research Committee)
29. Unveiling the impacts of technocracy in China's policy paradigm on urban development (LU's Research Committee)
30. Navigating urban landscapes: An in-depth investigation into citywalk behaviours and their impact on young adults in China (LU's Research Committee)
31. Which came first, the transit or housing? Tackling gentrification through rail-oriented development in the Guangdong-Hong Kong-Macao Greater Bay Area (LU's Research Committee)
32. Navigating belonging: lived experiences of migrants in urban China (LU's Research Committee)
33. Fuelling the city: The enterprise of camels in Beijing, 1750-1950 (LU's Research Committee)
34. Spatial sorting of new immigrants in Hong Kong (LU's Research Committee)
35. Lived experience of children in inadequate housing in Hong Kong (LU's Research Committee)
36. Falling off the housing ladder? A study of the housing careers of inadequate housing residents in Hong Kong (LU's Research Committee)
37. Creating youth commons: Supporting deprived youth (LU Donor)

Research on Carbon Capture

Addressing urban and regional carbon emissions is crucial to building resilient and sustainable communities. The Wu Jeh Yee School of Interdisciplinary Studies at Lingnan University is advancing research and applied initiatives focused on distributed and retrofittable carbon capture technologies and data-driven carbon management strategies adaptable across diverse sectors to reduce emissions and enhance environmental performance.

Prof. Xi Chen is a pioneer in global efforts toward direct air capture of carbon dioxide, while Prof. Jia Li has led major industrial projects on flue gas carbon capture, demonstrating practical applications that support large-scale emission reduction. In collaboration with a leading regional energy provider, Prof. Li's team explores innovative carbon mitigation solutions for existing power infrastructure, including the

integration of modular carbon capture systems, enabling emitters to advance cleaner and more sustainable energy generation.

Complementing this work, publicly funded research examines how technological innovation in supply chain finance—such as digital carbon accounting systems and green financing frameworks—can accelerate emission reduction across production and logistics networks. These initiatives promote transparent, low-carbon, and sustainable value chains, linking technological advancement with economic transformation.

Adopting an interdisciplinary and systems-based approach, the research integrates materials science, process optimization, techno-economic assessment, and policy studies to ensure technological feasibility, economic scalability, and alignment with broader sustainability goals. By bridging scientific innovation with governance and financial reform, the work contributes to the development of climate-resilient, resource-efficient, and adaptive urban systems.

Through these integrated efforts, Lingnan University is helping transform emission sources and value chains into active enablers of carbon mitigation and urban resilience. This research supports the decarbonization of key infrastructures and fosters inclusive, low-carbon, and environmentally responsible communities, advancing global progress toward SDG 11 – Sustainable Cities and Communities.

Lingnan Science Unit 10th Anniversary Exhibition: “Think Outside the Box” Arts × Science Interdisciplinary Exhibition

In September 2025, the Science Unit of Lingnan University celebrated its 10th anniversary by hosting the “Think Outside the Box” Arts × Science Interdisciplinary Exhibition, exploring the dynamic intersections between artistic expression and scientific inquiry.

Through close collaboration between 11 pairs of artists and academic staff, the exhibition presented 11 unique artworks inspired by distinct areas of scientific research. This creative synergy highlighted how art can communicate complex scientific ideas and promote public understanding of sustainability.

The exhibition attracted over 500 visitors, including members of tertiary institutions, secondary school students, art professionals, and ecology enthusiasts. To deepen public engagement, Lingnan also organised a series of academic seminars, interactive workshops, and ecology site visits, reaching an additional 400 participants.

By bringing together the arts, sciences, and the wider community, the exhibition exemplified Lingnan’s commitment to interdisciplinary learning and public engagement. It showcased the power of creativity in advancing science communication and fostering community participation in sustainability.

Collaboration Projects with External Organisations

Lingnan University actively collaborates with external partners to advance sustainable communities and promote social responsibility through education, research, and public engagement.

Lingnan Science Unit × A Plastic Ocean Foundation Limited: Sustainability and Green Job Expo

To foster sustainable career development and environmental awareness, Lingnan co-hosted the “Sustainability and Green Job Expo” with A Plastic Ocean Foundation Limited on campus in April 2025. The event aimed to equip students with knowledge of ESG principles and emerging sustainability trends, while providing valuable insights from industry professionals.

Six industry partners from sectors including yard waste recycling, humanitarian advocacy, marine science, and community recycling joined as exhibitors to share their experiences in advancing community sustainability. Sustainability workshops covered key topics such as food waste management and corporate social responsibility, encouraging students to explore nature based solutions that support long term community development.

Public Ecology Lectures and Engagement in Kadoorie Farm and Botanic Garden (KFBG)'s Campaign

To further engage with local sustainability networks, Lingnan participated in the Kadoorie Farm and Botanic Garden (KFBG) annual “Countryside Eco-Festival” in March 2025. The festival aimed to raise public awareness of local biodiversity and promote home-grown agricultural products as foundations of a sustainable community.

Three Lingnan faculty members delivered public lectures on the challenges posed by exotic species and their impact on local ecosystems. In addition, Lingnan set up an educational booth showcasing university research on invasive species, highlighting its relevance to conservation and biodiversity protection.

Through these collaborations, Lingnan University continues to strengthen community partnerships, nurture environmental awareness, and contribute to the goals of SDG 11 – Sustainable Cities and Communities.

Research

Funded by governmental departments (Research Grant Council, Faculty Research Grant, Civil Engineering and Development Department), Lingnan has conducted

research and developed publications to inform the public and policy makers of the importance of sustainable cities and communities.

Highlighted on-going projects in 2024-25:

- 1) Nature-based greening solutions for insect pollinator conservation and sustainable agriculture development
- 2) The impact of climatic and environmental factors on the spatial and temporal distribution of dengue risk in Hong Kong
- 3) The overlooked diversity in mosquito traps: an assessment and solutions to limit the bycatch
- 4) Exploring the spatiotemporal patterns and economic impacts of road traffic accidents of Hong Kong
- 5) Forest restoration and habitat connectivity for terrestrial mammals in Hong Kong - LU Research Committee
- 6) Between Mountain and Sea - Nature Conservation Management for Shui Hau
- 7) Unraveling species assembly and interactions in a warming city: implications to heat-resilient Nature-Based Solutions
- 8) From research to reality: Enhancing the impact of the mosquito risk index and GeoAI platform
- 9) The effects of a location-based health promotion mobile app on physical activities and chronic low back pain: A panel study with wearable devices
- 10) The Impact of Urban Microclimate and Built Environment on Indoor Air-Conditioning Energy Efficiency in Hong Kong
- 11) Wise use of wetlands - understand novel community assembly processes across a human-modified landscape
- 12) Revitalising farmland ecology to conserve insect pollinators and ecosystem services in Mui Wo - Civil Engineering and Development Department