

Lingnan University 2024/2025 SDG Report

SDG 12 – RESPONSIBLE CONSUMPTION AND PRODUCTION



15%

Proportion of Waste Recycled



50

Undergraduate Courses



186

Research Outputs



69

Research Projects and Grants

Lingnan University is committed to advancing SDG 12 – Responsible Consumption and Production through innovative research, education, and community action that promote sustainable resource use and circular economy practices. By developing eco-friendly materials, advancing green technologies, and fostering conscious consumption on campus and beyond, Lingnan demonstrates its dedication to reducing waste and supporting sustainable production. These efforts strengthen global progress toward a more responsible and resilient future.

Lingnan University implements a robust waste management strategy that includes strong initiatives to systematically track, reduce, and recycle waste in order to protect the environment. The university employs a detailed Waste Monitoring and Reporting System to quantify its waste streams, providing clear data on the disposal of municipal solid waste. This data-driven approach supports a comprehensive recycling program that handles a wide variety of materials. Through these targeted efforts in monitoring and reduction, Lingnan University demonstrates a committed and accountable framework for minimizing its environmental footprint.



Foodwaste Recycling @ Lingnan

Sustainable DNA–Polysaccharide Hydrogels as Recyclable Bioplastics

Prof. Xi Chen and Prof. Yujie Ke of the Wu Jeh Yee School of Interdisciplinary Studies, together with their collaborators, have developed a sustainable bioplastic that helps reduce plastic pollution and advances SDG 12 – Responsible Consumption and Production. Traditional petrochemical-based plastics are difficult to recycle and often require harsh solvents or energy-intensive processing, posing serious environmental challenges.

In contrast, the Lingnan team created an innovative approach using abundant natural materials derived from plant and biological waste—including dextran, alginic acid, carboxymethyl cellulose, and DNA. These components are gently modified and crosslinked in water to form durable DNA–polysaccharide hydrogels that can be processed into bioplastics. The resulting materials offer multiple advantages: they are water-processable, recyclable through simple aqueous recovery, and biodegradable, as their components naturally break down. They also exhibit resistance to organic solvents, self-healing properties, and can be manufactured at both large and nanoscale levels, greatly expanding their potential applications.

By relying on water-based processing and waste-derived feedstocks, this research promotes eco-friendly and circular material design, supporting more responsible consumption and production patterns. The work demonstrates Lingnan University's commitment to developing practical, sustainable alternatives to conventional plastics, contributing to global efforts to minimize environmental impact and advance sustainable manufacturing.

Advanced High-Safety and High-Energy-Density Batteries

The rapid growth of artificial intelligence, electric vehicles, and portable electronics has created an urgent need for batteries that combine high safety with high energy density. Prof. Liangliang Li of the Wu Jeh Yee School of Interdisciplinary Studies and his research team are developing next-generation secondary batteries, including solid-state and sodium-based systems, to meet this challenge.

Their work spans solid electrolyte design, electrode composition optimization, and architectural engineering of battery systems. Notable advances include a significant improvement in the electrochemical performance of all-solid-state fluoride-ion batteries through the construction of multiphase interfacial structures in anodes; the synthesis of novel non-flammable electrolytes enabling the stable cycling of lithium metal batteries at high voltages; and the precise regulation of sodium-ion deposition kinetics to achieve fast-charging, long-life anode-free sodium batteries.

This cutting-edge research offers promising pathways for developing safer, more efficient, and environmentally responsible energy storage technologies, directly supporting SDG 12 – Responsible Consumption and Production by promoting advanced materials and sustainable energy utilization.

Refining Conservation Genetics and Wildlife Forensic Methods to Combat the Illegal Wildlife Trade

SDG 12 – Responsible Consumption and Production emphasizes the sustainable use of natural resources, including wildlife and their products. Across the globe—and particularly in Asia—wildlife is widely used for food, traditional medicine, and the pet trade, with Hong Kong serving as a major hub for both legal and illegal wildlife trade.

In collaboration with the German Primate Center, our team is developing advanced wildlife forensic methods to combat illegal wildlife trafficking. Using genetic and stable isotope analyses, we have verified that turtles from confiscated shipments originated from the wild in Hong Kong, confirming their illegal status. Working closely with the Agriculture, Fisheries and Conservation Department of the Government of the Hong Kong Special Administrative Region, this scientific evidence has been instrumental in the successful prosecution of wildlife crime cases.

This research contributes directly to deterring illegal wildlife trade and promoting the sustainable use of biodiversity, aligning with global efforts to ensure more responsible consumption and protection of natural resources.

Jockey Club Sustainable Campus Consumer Programme: Sustainable Campus Education

As part of major efforts to promote campus sustainability, the Hong Kong Sustainable Campus Consortium (HKSCC), formed by eight UGC-funded institutions, has implemented the Jockey Club Sustainable Campus Consumer Programme (JCSCCP). Representing Lingnan University, the Science Unit has co-hosted a variety of projects that cultivate responsible consumption awareness and sustainable lifestyles across campus.

Lunchbox Lending Machine

In close collaboration between the Science Unit and the Office of Campus Development and Management, the Lunchbox Lending Programme (LLP) was launched in 2023 as a two-year initiative to promote a Bring-Your-Own (BYO) culture and reduce dependence on disposable meal containers. By mid-2025, the programme recorded over 300 lending instances, supported by two student-led campus campaigns and promotional booths advocating sustainable dining practices.

Low Carbon Food Tasting Fair

In October 2025, the Science Unit teamed up with JCSCCP to organize the Low Carbon Food Tasting Fair under the “Eat for the Planet” module. The event featured seven caterers, including the campus canteen, offering low-carbon delicacies to more than 350 members of the Lingnan community. The fair provided a meaningful opportunity for participants to rethink personal dining habits and their role in reducing greenhouse gas emissions.

Try Green Campaign with Local Vegetarian Caterer

To advance the “Go Green, Eat Smart” sustainable consumption initiative, Lingnan collaborated with a nearby vegetarian caterer on the Try Green Campaign with JCSCCP. Participants completed a low-carbon dining quiz and received free vegetarian meals as part of the initiative. The campaign attracted over 90 Lingnan members, fostering mutual benefits between the University and the local partner while successfully promoting sustainable dining habits.

Food Waste Bracelet Upcycling Workshop with Local Social Enterprise

To encourage responsible production and provide hands-on sustainability experience, Lingnan co-hosted the Food Waste Bracelet Upcycling Workshop with the social enterprise Ways Out Hong Kong. The workshop engaged 20 staff members in transforming food waste into jewelry pieces, highlighting the creative potential of waste upcycling and inspiring participants to reimagine sustainable materials and production processes.

Together, these initiatives demonstrate Lingnan University's active contribution to SDG 12 – Responsible Consumption and Production, fostering a more sustainable, conscious, and environmentally responsible campus culture.

“Dr. Compost” Promotes Food Waste Composting: Turning the Unpleasant into Action for Sustainability

Dr. Leung Shi-chi, Assistant Research Professor in the Department of Cultural Studies at Lingnan University, explores innovative ways to transform waste—commonly viewed as filthy—into valuable resources for sustainable development. Drawing inspiration from his rural upbringing in Enping and his mother's ingenuity in reusing materials, Dr. Leung focuses on food waste and human excreta recycling as part of his commitment to SDG 12 – Responsible Consumption and Production.

Through fieldwork in rural China, Dr. Leung examined traditional practices that use fermented human and animal waste as organic fertilizers. He observed that fermented human urine produces nitrogen and becomes an odorless, nutrient-rich fertilizer, while dried feces lose their odor and resemble soil, demonstrating how waste can be safely returned to the earth. His research reveals that such sustainable, low-cost methods offer valuable lessons for modern societies that often disregard traditional ecological knowledge.

Dr. Leung's perspective stems from both scholarly inquiry and personal experience. Growing up in a modest household and later moving to urban Hong Kong, he witnessed how urbanization distanced people from sustainable waste practices. He advocates reversing conventional waste education—from “changing attitudes to drive action” to “action changing attitudes.” By engaging the public in food waste composting and small-scale farming, he encourages reflection on daily consumption and the importance of cyclical resource use.

His research has attracted international interest; following a presentation in the United Kingdom, Dr. Leung was invited to Chile to share his insights on waste management

and cultural attitudes. His work exemplifies how simple, tangible actions—like composting—can reshape perceptions, bridge cultural divides, and inspire sustainable lifestyles grounded in the principle that action can change attitudes.

Offering of Integrated Learning Programs (ILP) in relation to Responsible Production for Undergraduates

To promote students' awareness on environmental sustainability and zero waste lifestyle, Lingnan has developed an ILP event series that were revitalized every term on multifaceted aspects. With the support of community connections on sustainability education and teaching expertise, Lingnan has introduced 150+ workshops and seminars for all undergraduates in response to the liberal education initiatives on climate and environment, cultural appreciation and knowledge transfer.

In 2024-25, Science Unit Lingnan has organized workshops in relation to eco-friendly and nature-based production, namely, "Plant Dyeing Totebag Workshop" and "Transforming Black Soldier Flies (BSF): Grub Oil Hand Care Workshop". Both events highlighted the importance of opting for sustainability over man-made chemicals, and prioritising nature in daily production. Through various scopes of teaching goals, Lingnan has been committed to the provision of all-rounded education that nurtures decisive minds for sustainability.