RESEARCH FOCUS AREAS
重點研究領域

RISUD is led by Director Prof. Xiang-dong LI and Associate Directors Sr Prof. Charles Man Sing WONG and Prof. Tao YU. The Institute is organised into four divisions which collectively encompass 15 research groups. These research groups serve as nodes in a dynamic interactive network, connecting members with common research interests to form strong teams for major interdisciplinary research projects, thereby advancing the frontiers of knowledge and technology.

可持續城市發展研究院由院長李向東教授，副院長黃文聲教授及余濤教授領導。研究院劃分四大分部，轄下共設十五個研究小組。這些研究小組形成動態互動網絡中的樞紐，連結具共同研究興趣的成員，組成強大的科研團隊，開展大型的交叉學科研究項目，從而推動知識和技術發展。

Division of Urban Carbon Neutrality
城市碳中和分部

Division of Urban Carbon Neutrality addresses the urgent need for cities to achieve carbon neutrality, given their significant CO_2 emissions and energy demand. By expanding beyond traditional urban planning to include environmental, economic, and political considerations, the division aims to drive practical innovations and systematic transformations for a sustainable urban future.

鑒於城市龐大的二氧化碳排放和能源需求，本分部致力於應對城市實現碳中和的迫切需要。透過跨越傳統城市規劃的界限，並將環境、經濟和政治因素納入於研究考量中，本分部竭力推動實用創新和系統性轉型，以實現可持續的城市發展。

- Urban Energy Sciences and Novel Low/Zero Carbon Technologies
  城市能源科學與新型低碳／零碳技術
- New Mobilities and Urban Planning/Operation
  嶄新出行方式與城市規劃／運營
- AI-Enabled Urban Dynamics and Human-Centric Responses
  人工智慧賦能的城市動態與以人為本的回應措施
- Economics and Finance including Carbon Trading and New Business Model
  經濟與金融(包括碳交易和新商業模式)

Division of Urban Environment
城市環境分部

The Division of Urban Environment enhances urban settings by researching air pollution, developing waste reduction technologies, and promoting circular economy principles. We study urban development's impact on ecosystems, designs green infrastructure, addresses noise pollution with innovative solutions, and advances technologies for efficient water and wastewater treatment to ensure safe and reliable supply systems.

本分部致力通過研究空氣污染、開發減廢技術和推廣循環經濟原則，以改善城市環境。本部成員研究城市發展對生態系統的影響，設計綠色基礎設施，以創新解決方案應對噪音污染，並改良高效供水和污水處理技術，以確保供應系統安全可靠。

- Regional Air Quality
  區域空氣質素
- Sustainable Waste Management
  可持續廢物處理
- Urban Ecosystems
  城市生態系統
- Urban Noise Mitigation
  城市減噪
- Urban Water and Wastewater Treatment
  城市水資源與污水處理

Division of Urban Infrastructure
城市基建分部

The Division of Urban Infrastructure leads research to enhance city systems by utilising advanced materials, including composites and recycled options, for optimised structural use. It focuses on safety in construction, fire, transportation, and geo-hazards, while integrating robotics and AI in structural design, manufacturing, and monitoring to ensure resilient and efficient urban infrastructure.

本分部專於研究以先進材料（包括複合材料和再生材料）來完善結構使用，從而提升城市系統。研究重點涵蓋建築、消防、交通安全和地質災害，並透過結合機器人和人工智能技術到結構設計、製造和監測中，以確保城市基礎設施更具韌性和效率。

- Sustainable Materials and Structures
  可持續材料與結構
- Infrastructure Safety and Resilience
  基礎設施安全與韌性
- AI and Robots for Intelligent Infrastructure
  用於智慧基礎設施的人工智能和機械人技術

Division of Urban Nature-Based Solutions
城市自然為本解決方案分部

The Division of Urban Nature-Based Solutions commits to transforming urban environments by leveraging the power of nature to protect, manage, and restore ecosystems, effectively addressing societal challenges while enhancing human well-being and biodiversity.

本分部致力依靠大自然本身的力量，去保護、管理和修復生態系統，為城市環境帶來正面改變，以助有效地應對社會挑戰，同時增進人類福祉和生物多樣性。

- Next generation vegetation monitoring and assessment
  下一代植被監測與評估
- Carbon sequestration from green and blue sources
  綠碳和藍碳截存
- Urban planning and design with nature-based solutions in new developments
  自然為本的解決方案在規劃和設計新開發項目中的應用

Contact us
聯絡我們

ZS1202, 12/F, South Tower, Block Z, The Hong Kong Polytechnic University,
Hung Hom, Kowloon, Hong Kong
香港九龍紅磡香港理工大學Z座南座12樓Z1202室
Email: risud@polyu.edu.hk
Website: www.polyu.edu.hk/risud

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

PolyU Academy for Interdisciplinary Research
香港理工大學高等研究院

RESEARCH INSTITUTE FOR SUSTAINABLE URBAN DEVELOPMENT
可持續城市發展研究院

RESEARCH INSTITUTE FOR SUSTAINABLE URBAN DEVELOPMENT
可持續城市發展研究院

ABOUT THE INSTITUTE
關於研究院

中國經濟的高速增長推動全國城市建設高速發展。未來25年，預計內地將有近3億農村人口遷往城市定居。這種大規模的城市化進程是前所未見的。當務之急是以可持續的方式實現城市化，從而達至自然環境保育，締造賦有能源和資源效益的居住環境。

城市化浪潮為香港帶來契機。由於多個內地城市借鑒了香港的高密度城市發展模式，建有大量高層建築，這些城市不論在施工或管理等方面都會遇到不少特殊難題。

有見及此，香港理工大學（理大）成立可持續城市發展研究院（RISUD），旨在利用理大的交叉學科研究優勢，並以香港作為可持續發展方案試點的「生活實驗室」，為高密度城市的可持續發展開發創新方案。

China's fast-growing economy has driven the Nation to undergo rapid urbanisation. Over the next 25 years, it is estimated that around 300 million rural dwellers in China will move into cities. Such large-scale urbanisation process is unprecedented in history. It is imperative to achieve urban development in a sustainable manner, thus enabling the conservation of natural ecosystems and building an energy- and resource-efficient living environment.

The tide of urbanisation in China has brought new opportunities to Hong Kong. As many Mainland cities adopted Hong Kong's high-density urban development model and constructed a great number of high-rise buildings, these places are faced with many unique challenges in both construction and management.

Against this background, the Research Institute for Sustainable Urban Development (RISUD) was established by The Hong Kong Polytechnic University (PolyU) to develop innovative solutions for sustainable high-density cities by leveraging PolyU's interdisciplinary research strength and Hong Kong as a "living laboratory" for experimenting sustainability solutions.

Vision
願景

To be a world leader in the development and dissemination of innovative solutions for sustainable high-density urban development.

成為開發及推動實行可持續高密度城市發展創新策略的世界領先機構。

Mission
使命

- To create innovative solutions to problems generated by high-density urban development through cutting-edge interdisciplinary research;
  通過前沿的交叉學科研究，針對高密度城市發展所衍生的問題開發創新解決方案；
- To engage in knowledge transfer activities by collaborating with industry and government; and
  與政府及業界合作，促進知識轉移；及
- To make an impact on societal culture of urban sustainability through community engagement and services.
  透過社區參與和服務，增進城市可持續發展的社會文化