



**Innovation and Technology Commission**

**Environmental Report 2023**



## **1. Introduction**

This is the twenty-fourth Environmental Report published by the Innovation and Technology Commission, covering the Commission's environmental policy, targets and achievements in 2023.

The mission of the Innovation and Technology Commission is to spearhead Hong Kong's drive to become a world-class, knowledge-based economy. We strive to enhance Hong Kong's competitiveness and develop our city into an innovation and technology hub. We have been working on the following initiatives:

- Promoting and supporting applied research and development (R&D) and technology transfer and application which can contribute to innovation and technology upgrading in industry;
- Promoting technological entrepreneurship in Hong Kong and providing essential support to technology-based entrepreneurial activities;
- Supporting the formulation and coordination of innovation and technology policies, and fostering an innovation and technology culture in the community;
- Facilitating the development of world-class support infrastructure and innovation and technology talent to facilitate technological upgrading and development of the industry, and to promote innovation and technology;
- Promoting internationally accepted standards and conformity assessment services to underpin technological development and international trade; and
- Promoting the development of the testing and certification industry in Hong Kong.

## **2. Environmental Policy**

Innovation and technological development cuts across different fields, of which environmental management is one. We aim at providing support to Hong Kong industries to develop and implement advanced technologies for environmental management.

This Commission is also committed to providing a green office environment at the workplace and to ensuring that our operation is conducted in an environmentally conscious and responsible manner. We also educate our colleagues to ensure that they are aware of our departmental environmental policy and initiatives as well as their responsibilities such that they can participate actively in protecting the environment.

## **3. Support Measures to the Industry on Environmental Matters**

Local industries and the society at large are more conscious about the environment than before. Industries recognise the need to adopt cleaner and more environmentally friendly technologies. The Commission continues to provide funding support to the development and adoption of clean environmental technologies and processes in Hong Kong. Funding is available for environmental technology-related projects under the Innovation and Technology Fund (the Fund). The assessment panels for the respective programmes under the Fund would vet environment-related applications. The panels also monitor the implementation of these funded R&D projects.

In 2023, the Fund provided funding support to the following 30 environment-related R&D projects with a total commitment of about \$ 109.91 million:

- Study of Novel Reactive Adsorbents and Efficacious Integrated Beds for Purification Processing to Produce Fuel-Cell-Ready Ultra-High-Purity Hydrogen;
- Development of a Scalable Electrometallurgical Treatment Strategy to Extract and Capture Valuable Metals from Waste Printed Circuit Boards;
- High-performance Nano-structured Hollow Fiber Nanofiltration Membranes by In-line Interfacial Polymerization;
- Smart Pipes for Sustainable Buildings;
- Antimicrobial NanoFiber Filters for Capture and Inactivation of Infectious Droplets and Aerosols;
- Ultrahigh Flow Catalytic Air Sterilizer and Purifier;
- Condensate-assisted water-based air purification WAP/HVAC integration for improving energy efficiency, thermal comfort and indoor air quality;
- Laser Paint Removal EcoSocialSustainability;

- Development of Dual Ammonia Removal/Recovery from Sludge Digestate using a Novel Hollow Fiber/Flat Sheet Membrane Distillation;
- Mitigating Coastal Flooding Risk for Smart Cities: Modeling 'Coastal Waves / Storm Surge' and 'Post-Processing' using Big Data Techniques;
- High Value Construction Chemicals Produced from Accelerated Carbonation of Fine Recycled Concrete Powder;
- Superwetting Surface with Tailored Micro-nano Composite Patterns for Humidity Control and Mold Prevention;
- Innovative Concrete Technology with Man-made Lightweight Geopolymer Aggregates from Full-volume Solid Wastes;
- Development of CUHK Satellites and Integrated Remote Sensing Technologies for Near Real-time Landslide Monitoring;
- Blockchain-Based Platform for Beverage Container Recycling with Advanced Privacy Features;
- Field-Portable Sensing System for Microplastic in Water Supply;
- Smart Refrigeration Truck Development Programme - Power, Solar and Intelligence Method for Logistics and Storage;
- Smart Sensing System for Continuous Surface Water Monitoring;
- Next-generation Green Dehumidifiers with Zero-Carbon-Emission Elastocaloric Cooling Technology;
- Transition Metal Phosphide-Graphene Aerogel Composite Electrode Enabled Electrocatalytic Production of Green Ammonia with High Efficiency and on a Large Scale from N<sub>2</sub>-Dissolved Ionic Liquids;
- Development of scalable ultra-strength bamboo materials with zero toxic adhesive for bulk production and industrial applications;
- Engineered Nanostructured Surfaces for Enhanced Moisture Condensation and Removal;
- Development of Integrated Catalytic Processes for the Conversion of Waste Biomass to Hydrogen;
- NAMI's Sustainable Upcycling Technology for Mixed Post-Consumer Recycled Plastics;
- NAMI Low Carbon Bio-based Superabsorbent Polymer;
- NAMI Fiber-Reinforced Micro-foaming Pellets for Lightweight ESG Products;
- Development of a novel micro-turbine power generation and air conditioning system to alleviate global warming;
- Development of a Mapping and AI-based prediction system of carbon amounts for tropical forests and plantations;

- The development and application of an intelligent control system for facility agriculture based on multi-dimensional light recipe adjustment; and
- Development of Rechargeable Ni-Zn Alkaline Batteries with High Energy Density and Long Cycle Life.

#### **4. Green Housekeeping Measures**

In support of the Government's efforts to protect the environment, this Commission is committed to ensuring that our internal operations are conforming to environmental protection principles and practices. In 2023, we continued to adopt the following green practices:

##### ***Paper Consumption***

- We continued the use of the electronic modes for internal and external communications, official correspondences and circulation of information.
- We provided all colleagues with an individual e-mail account and access to computer terminals connected to the departmental network.
- We continued to use the electronic Admin Bulletin board to disseminate information including telephone directories, training activities, newsletters, circulars, etc.
- We sent festive greetings electronically.
- We put circulars, statistics, directories etc. which are commonly used on the shared drive.
- We issued press releases and distributed application forms for funding support to members of the public through our website.
- We continued to review the subscription of newspapers and periodicals and, where possible, replace them by e-version of magazines and periodicals.
- We provided divisional Green Executives with regular reports on paper consumption to facilitate monitoring at divisional level.
- We used recycled paper in place of white paper. In 2023, we utilised 5 145 reams of recycled printing paper in A4 size and 52 reams in A3 size.
- We did not use fax cover sheets.
- We avoided delivering unclassified documents in envelopes.

- We used photocopiers and network printers capable of producing double-sided printouts.
- We regularly reminded colleagues to keep the number of paper printouts to the minimum and to use both sides of paper.
- We placed boxes holding single-side used paper beside photocopiers and printers to encourage the use of the blank side of used paper.

### ***Energy Consumption***

- We used energy saving fluorescent lamps in our offices. Task lighting approach was adopted for our offices as necessary and there was a lower ambient lighting level (300 lux) in general. The task areas which required a higher luminance level for reading purposes were supplemented with localised lighting by means of desk lamps.
- Automatic sensors were installed and widely used in our office areas including open plan office, cellular offices, meeting rooms and store rooms. Lights would automatically be switched off when nobody was in the area.
- We kept reminding colleagues to switch off electrical appliances while not in use and a staff member was designated to turn off all unnecessary electrical appliances after normal office hours.
- We enabled the energy saving feature of computers and office equipment.
- Room temperature was set at 25.5°C to reduce energy consumption.
- Computer servers were consolidated via the latest virtualisation technology for better server utilisation rate and reduction of energy consumption.

In 2023, the total electricity consumption of ITC offices<sup>1</sup> amounted to 330 202 kWh. This figure includes electricity usage from offices located at Shui On Centre, Kowloonbay International Trade & Exhibition Centre, Rykadan Capital Tower, and The Hub.

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<sup>1</sup> Excluding electricity consumptions in joint-user government buildings which are reported by the Government Property Agency

### ***Water Conservation***

- Automatic sensor water taps were used in washrooms at our offices as far as possible to reduce water consumption.

### ***Waste Minimisation and Recycling***

- We continued to provide green bags in the office for the collection of waste paper for recycling.
- We collected used printer toner cartridges for recycling.
- We reused envelopes, loose minute file jackets and tags as far as practicable.
- We placed boxes holding used envelopes in common areas to facilitate re-use.
- We reused decorative and festive materials during celebration occasions.
- We used porcelain utensils / glasses instead of disposable ones during meetings.
- We did not serve bottled water or use paper coasters / cup covers during meetings.
- We adhered to the government guidelines on reducing food waste and ordered no more than six main dishes to avoid excessive food and unnecessary wastage when hosting Chinese cuisine in restaurants.
- In support of green living, we did not consume shark fin, bluefin tuna and black moss in official entertainment functions.
- In line with the Government's green policy, we refrained from bestowing gifts / souvenirs to others during the conduct of official activities as far as possible.

### ***Compliance with Clean Air Charter***

- We adhered to the commitments stated in the Clean Air Charter to help improve Hong Kong's air quality.
- Our departmental cars run on petrol instead of diesel fuel.
- We were conscious of the need to reduce energy consumption and implemented energy-efficient measures in our offices.

## Indoor Air Quality

- We participated in the Indoor Air Quality (IAQ) Certification Scheme launched by the Environmental Protection Department. Our offices at Shui On Centre, Immigration Tower, Revenue Tower, Kowloonbay International Trade & Exhibition Centre, Rykadan Capital Tower, The Hub and Queensway Government Offices were certified complying with the “Good Class” of the IAQ Objectives.



- We installed air purifiers in the office to degrade pollutants and kill bacteria in the air.

## Green Procurement

- We took into account environmental considerations when procuring goods and services.
- We purchased office equipment with Grade 1 energy label as far as possible.
- We procured environmentally friendly products such as recycled paper and clutch pencils.

In 2023, we procured 9 categories of products and services with green specifications, amounting to a total commitment of approximately \$1.65 million. Major items included purchase of toner cartridges, procurement of services for organising events, meetings, conferences, as well as cleansing services.

### ***Environmental Education***

- We issued e-mails to colleagues regularly to appeal for their support of our green initiatives and provide tips on environmental protection and energy saving to arouse colleagues' consciousness in environmental protection.
- We reminded colleagues of our green measures regularly through an internal circular.

## **5. The Way Forward**

In 2024, the Commission will continue to promote and implement green measures and housekeeping practices. To ensure that the green efforts will be maintained and further improved, we are committed to:

- providing funding support to environment-related R&D projects;
- promoting and encouraging the adoption of effective green measures to provide a green working environment;
- encouraging and promoting colleagues' participation through various channels, such as dissemination of green messages and organisation of environmental seminars;
- implementing various energy-efficient measures;
- adhering to the commitments stated in the Clean Air Charter;
- encouraging wider use of information technology to minimise paper and energy consumption;
- adopting a green IT approach in planning future computer projects; and
- equipping our colleagues with adequate computer facility to facilitate the efficient transaction of departmental business by electronic means.



## **6. Feedback**

We welcome your valuable feedback on this Environmental Report. Please contact the Green Manager of the Commission by:

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This report is also available on the homepage of the Commission at <http://www.itc.gov.hk>.

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