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How Hong Kong can rescue the struggling recycling industry and win its war on plastic waste

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- PET is the world's most recycled plastic, with US and European recycling rates of 31 per cent and 52 per cent dwarfing Hong Kong's 12.3 per cent for all kinds of plastics
- A Hong Kong circular supply chain facility clocks only 30 per cent capacity utilisation due to weak policy support, poor infrastructure and consumer distrust, co-owner says

At EcoPark, Hong Kong's first recycling business park in New Territories, New Life Plastics (NLP) has been running the city's largest food-grade plastics recycling facility aspiring to process a quarter of the city's 4.7 million plastic drink containers landfilled daily.

At the December 2022 opening ceremony of the state-of-the-art, 6,500-square-metre plant that cost US\$11.6 million to build, Patrick Healy, chairman of Swire Coca-Cola said setting up NLP was a "huge step" towards the Hong Kong-based drink maker's ambition of "closing the loop".

He was referring to the establishment of an unprecedented circular supply chain where all of Hong Kong's discarded polyethylene terephthalate (PET) bottles, used for packaging locally made drinks, are collected and processed into recycled PET (rPET) pellets for producing new containers.

NLP is equally owned by Swire Coca-Cola, German waste management recycling firm Alba Group, and Hong Kong's Baguio Waste Management and Recycling.

But two years after operations began, NLP's plant is running at only around 30 per cent of its PET bottles processing capacity, said Suzanne Cheung Kit-yi, head of public affairs, communications and sustainability at Swire Coca-Cola HK.

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She attributed the low utilisation to insufficient policy support and incentives, inadequate collection infrastructure and consumers' lack of trust that bottles placed in recycling bins will indeed be recycled or just end up as pollutants in landfills.

“Convenience of recycling and trust hold the key, both of which are lacking in Hong Kong,” she told the Post. “The government can play a strong role in improving convenience, incentivising recycling-friendly packaging design, and enhancing trust through education and recycling check-and-trace mechanisms.”



PET is the world's most recycled plastic with current rates of 31 per cent in the United States and 52 per cent in Europe, according to industry associations representing North American and European producers of PET. In contrast, only around 12.3 per cent of Hong Kong's nearly one million tonnes of all kinds of plastic waste was sent for recycling in 2022, according to Environmental Protection Department statistics.

And now there is urgency to act as the walls are closing remorselessly. Some 75,190 tonnes of plastic bottles - equivalent to the take-off weight of 330 Boeing 787 Dreamliner planes - were

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estimated to have ended up at landfills in 2022. This follows the ban by mainland China, previously a key destination for Hong Kong's recyclable plastic wastes, on imports of unprocessed solid waste in recent years.

The failure to recycle has environmental implications. A 500-millilitre PET bottle weighing 10 grammes has a greenhouse gas footprint equivalent to 82.8 grammes of carbon dioxide, according to Beverage Industry Environmental Roundtable, a coalition of leading drinks companies.

PET plastic bottles carry other environmental and health risks, since it takes up to 500 years to degrade and can be a source of plastic pollution and microplastics in drinking water and the environment, the US National Institute of Health said.

Composition of plastic wastes disposed of at landfills in 2022

(tonnes per day)

Plastic bags		878
Plastic bottles		206
Plastic/polyfoam dining wares		227
Others		1,057

Total: **2,369**

Bottled water makers Swire Coca-Cola and Watsons Water have, in recent years, taken preemptive action, voluntarily adopting the use of the more expensive rPET material for packaging, and operating “reverse vending machines”, to encourage the collection and recycling of bottles by offering rewards in exchange.

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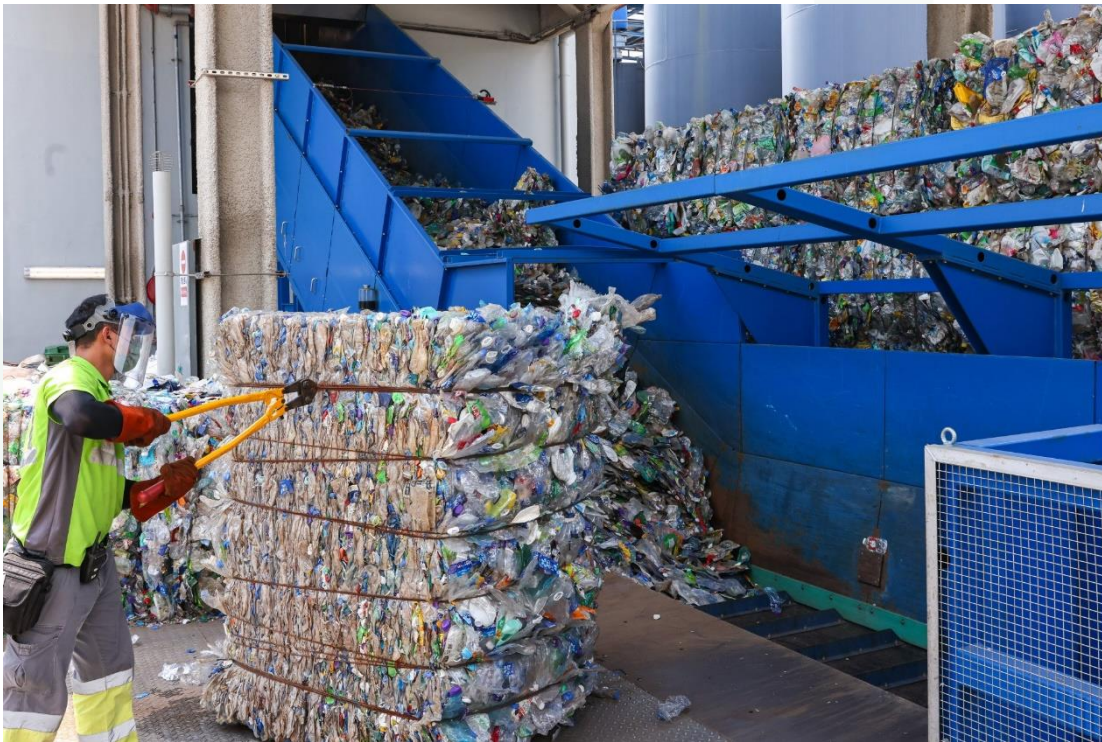
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Still, since rPET is primarily sourced from overseas, there is some way to go before reaching the goal of “closing the loop” completely, minimising the distance travelled by plastic bottles and shrinking their carbon footprint.

“It is our aspiration to make the local circular economy real in Hong Kong,” Cheung said. “That is why we work with NLP to see if we can use locally-collected bottles to re-make bottles locally.”

Circular economy is a model of manufacturing and consumption, where reusing, repurposing and recycling of existing materials and products can prolong their useful life, hence minimising materials and energy usage, besides cutting waste generation and greenhouse gas emissions.

Circular economy initiatives are expected to contribute to some 30 per cent of the reduction in mainland China’s carbon emissions by next year, a proportion seen rising to over 35 per cent by 2030, policy planner National Development and Reform Commission said on Monday.



A worker transfer recycling plastic bottles to a bale breaker at New Life Plastics’ Advanced PET and HDPE Recycling Facility in operation at EcoPark at Tuen Mun. The plant handles

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PET (polyethylene terephthalate) and HDPE (high density polythene) containers and reprocesses them for use in other products. Photo: K. Y. Cheng

Currently, plastic recycling in Hong Kong is not profitable due to high operating costs, said Patrick Chan Pak-hang, chief financial officer at the Hong Kong-listed firm Baguio Green Group, which is primarily in the business of cleaning, waste collection and recycling.

“Bottle collection, sorting and cleaning is expensive, as it requires land resources, transport fleets, electricity and labour,” he said. “Sorting is especially cumbersome and important, because if different materials are mixed together, it would severely undermine the quality and selling price of the recycled product.

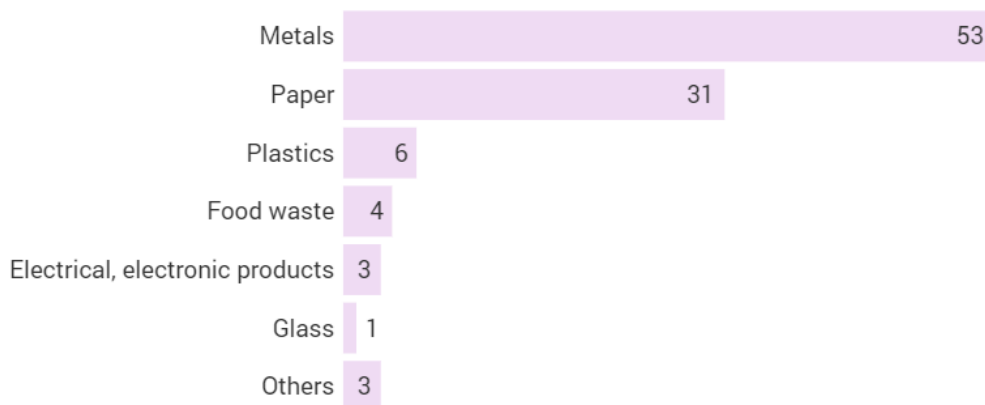
“That is why we need to introduce a levy on waste collection and other incentive schemes to motivate consumers to contribute more towards recycling.”

Due to limited land, Hong Kong needs to collaborate with southern Guangdong cities, according to Chan, adding that government level discussions are needed to tackle the problems posed by the ban on imports of unprocessed plastic wastes into mainland China.

The Hong Kong government should also support local recyclers by offering them longer leases for the approved land plots, he said.

Recyclables recovered from municipal solid wastes in 2022

(%)



Total recovered quantity: **1.91 million tonnes**

The government is expected to carry out the much-delayed implementation of levy on municipal solid wastes beginning in August, and compel waste generators to buy designated bags for disposal. Together with penalties for non-compliance, it aims to incentivise waste reduction, and promote repurposing and recycling.

The government aims to enact a bill later this year, on a “common legislative framework” for implementing producer responsibility schemes (PRS) for plastic drink containers, drink cartons, electric vehicle batteries, vehicle tyres and lead acid batteries from next year, an Environmental Protection Department spokeswoman said.

PRS aims to have manufacturers, distributors and consumers share the responsibility and costs for collection, processing, recycling and disposal. A scheme for the environmentally safe disposal of electrical and electronic equipment was launched in 2018.

“After the passage of the bill, we will introduce the subsidiary legislation on the PRS on plastic drink containers and drink cartons to the Legislative Council,” she told the Post.

To increase the recycling rate, the government has rolled out pilot schemes that have so far installed 120 plastic bottles reverse vending machines that offer consumers 10 HK cents of rebate for each used bottle that is returned.

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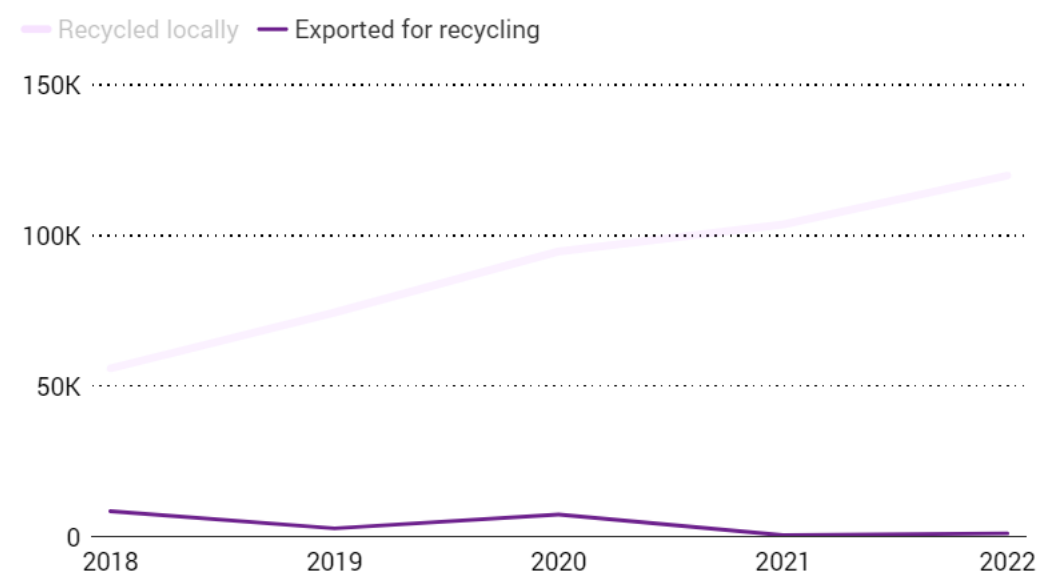
The department has also implemented a central collection service for waste plastics in nine districts, and established over 180 public collection points that accept nine types of recyclables, including plastic drink containers. Participants in an incentive scheme can earn credits for redeeming gifts and daily necessities.

Meanwhile, Swire Coca Cola has made advances in other recycling-friendly packaging initiatives.

In April 2022, it became the city's first company to launch a label-free bottled water product for the mass market. The sales bar code is featured on the bottle cap, instead of on a plastic film attached to the bottle as per convention, to facilitate the sale of individual units.

Quantity of recovered recyclable plastics in 2022

(tonnes)



Source: HK Environmental Protection Department

SCMP Graphics

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“It actually costs us more money and time to make the bottles because we have to buy machines to laser-incise information on the bottle letter by letter instead of sticking a label on quickly,” Cheung said, adding that the initiative was supported by consumers.

“We have conducted focus groups to gauge consumer responses to our packaging and labelling changes for reducing contaminants for recycling, which was quite supportive,” she said. “We were quite nervous initially because of the visibility impact on the brand, hence we had a marketing campaign to support it ... but we are not alone as this is a global trend.”

Other governments in the region have already passed legislation that encourages eco-friendly packaging and some have reported early wins. In 2019, South Korea’s government banned the use of polyvinyl chloride (PVC) and coloured PET in food-grade plastic bottles, both difficult-to-recycle materials. It was followed by a government requirement to grade and label the recyclability of the bottles.

“Recyclers do not like PVC because it is toxic and it has the same melting point as PET, which will adulterate the quality of the plastic and reduce its usability and value,” Cheung explained.

These moves have produced dramatic results. South Korea raised its plastic waste recycling rate to 57 per cent in 2021 from 34 per cent in 2018. It aims to further increase the rate to 70 per cent by 2030.

Taiwan’s government unveiled a plan last November, to offer rebates of up to 85 per cent on the waste disposal levy applied to plastic containers if certain standards are met. These concessions will be made available from the second half of this year and companies’ packaging materials must achieve specific green design criteria. These include usage of single material, physical transparency, label-free conditions and the packaging must contain at least 25 per cent recycled material.

Hong Kong can also look to mainland China’s recycling success stories for inspiration, where a public-private collaboration project in Suzhou in eastern China pioneered this model. Singapore-based Alliance to End Plastic Waste (AEPW), a non-profit organisation, joined German development agency Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

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on a project to stanch plastic waste leakage into the Yangtze River. Named JingSu, it alludes to the idea of cleaning up plastics in Suzhou, with a wordplay in Chinese pinyin where “Su” can mean “plastic” or refer to the city of Suzhou.

Funded by the AEPW and implemented by GIZ, the JingSu project sought to strengthen Suzhou’s plastic waste collection infrastructure and raise the recycling rate of difficult-to-recover, single-use plastic food and drink containers, through incentives.

AEPW, backed by plastic makers and recycling solution providers, has dedicated 80 per cent of its US\$500 million budget, raised from its 74 members, towards projects in multiple countries.

GIZ and AEPW selected Suzhou to be the pilot implementation city as part of Beijing’s Zero Waste City strategy which promotes circular economy practices nationwide.

Between September 2021 and December 2023, the JingSu project established 500 collection points, where citizens can directly sell their plastic containers to state-owned collection and segregation firm Su Zai Tou, which then resells materials to recyclers for further processing. Some 6,800 tonnes of plastic materials were collected in the period.

Before the establishment of the JingSu Project, there was no recycling system for food and drink containers – considered low-value plastic waste – in Suzhou, said Qian Mingyu, JingSu’s project manager and team lead of environment and circular economy at GIZ.

Nick Kolesch, vice-president at the Alliance, said many of its member companies are making design changes to enhance recyclability of plastic packaging.

“One of the key technical areas of the industry has been the minimisation of material use for the same purpose, and that comes through light-weighting and thin-walling of different materials and packaging,” he said.

Technology also plays a role in making recycling a commercially-viable business, according to Shanghai-based recyclable materials collection firm, LoveRe. It has installed some 21,000 “smart” collection machines in over 30 mainland cities since 2019.

“We use artificial intelligence-enabled packaging recognition and optoelectronic equipment to sort drink containers with an accuracy as high as 98 per cent, and we reward consumers via a mobile app for accurate classification and deposit of materials in our machines,” said Jiang Wenhua, LoveRe’s vice-president.

Data collected since 2019 in Shanghai and Qingdao showed that its recyclable material collection systems have helped the respective local governments to reduce landfilled municipal wastes by around 30 per cent, he added.

In the case of Hong Kong, Swire Coca-Cola’s Cheung said with policy support, consumer education and corporate efforts, circular economy initiatives in the city can start with plastic drink bottles.

“One day we will be able to use bottles made entirely from food-grade recycled PET plastics from Hong Kong, and people will know and trust them when they see them in our store shelves,” Cheung said. “I hope that will happen in my professional lifetime.”