

# METAL WASTE

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CREATED BY



Program of  
Pangaia Solutions  
Limited

BRIEF & SOLUTIONS  
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# ACKNOWLEDGEMENTS

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## Overview

Metals are broadly present in a variety of goods with both short- and long-term use. In the restaurant and hotel industry, metals are found in the form of beverage and food containers and other aluminium or steel packaging. Metal cans are lightweight, convenient to carry, and easy to dispose of. However, heavy metals accumulate in the natural ecosystem and can cause harm to human health if they are not properly recycled.

In fact, metals are very suitable for a circular economy as they are eternally recyclable, and if properly treated, secondary metals do not face downcycling or quality issues. For example, recycled steel, also called steel scrap, reduces CO2 emissions by 58% in the production process. Furthermore, using recycled steel to make new steel reduces air pollution by 86%, water use by 40%, and water pollution by 76%. Recycling aluminium cans is a straightforward and fast process: once collected, the cans are easily separated from packaging made of other materials and can then be transformed into new products within just 60 days.

In Hong Kong, metals made up only 2.2% of the Municipal Solid Waste (238 tonnes per day) disposed of at landfills in 2020. Meanwhile, only 48.2% of ferrous metals (contain iron) and 7.5% of non-ferrous metals were recycled, and most were sent for recycling overseas.

According to the Environmental Protection Department, aluminium cans are rarely found in landfills in Hong Kong due to the vibrant private market which pays a good price for waste aluminium cans collection for recovery purposes.

## INSIGHTS FROM OUR TRIAL

During our trial with 20 F&B outlets in the SoHo Central District of Hong Kong, we diverted 302 kg of metal waste from landfill, which equals 20,133 aluminum cans. Although this waste category was not the largest based on weight, it is a highly recyclable material. Many outlets in the trial did not recycle metal waste before mostly due to lacking infrastructure for metallic waste recycling near their premises. Otherwise, the recycling of metal proved simple and easily implemented by the participants.

## GOOD PRACTICES & INNOVATIVE SOLUTIONS

### Canned Beverages

- ONLY Vodka Soda in Hong Kong joined the trend of canned alcoholic beverages and now produces premium vodka soda in a can. Cans are perfect for individual servings and portion control. The company owners ensure that their cans are made from aluminium coils that contain more than 60% of recycled content and are produced primarily using renewable energy sources.
- Coca-Cola's purified water brand Dasani received a green makeover in 2019. Since then it has been sold in aluminium cans and bottles made of 70% recycled aluminium.

## Recycling Aluminium Coffee Capsules

- In October 2022, Nespresso in Hong Kong presented RE:FARM, a limited-time, experiential showcase that highlights the full circular journey of coffee. Once collected, used Nespresso capsules are taken to a local plant where the aluminium is separated from the coffee residue. The shredded aluminium is sent to a scrap metal collector for further re-melting into recycled aluminium, while the Nespresso coffee grounds separated from the aluminium capsules are sent to a local farm in the New Territories for further processing into farm compost. RE:FARM uses this compost to grow a variety of herbs, microgreens, and edible flowers within self-contained farming units, which are later harvested and sent to selected Nespresso partner restaurants in K11 MUSEA and Rosewood Hong Kong. Nespresso encourages customers to participate in recycling their used capsules either by bringing them back to the Nespresso Boutiques in Hong Kong, or giving the used capsules to the delivery person upon the next purchase's delivery.

## Aluminium Beverage Containers

- In 2019, Ball debuted its Aluminum Cup made of at least 70% recycled aluminium and brought those cups to Miami for Super Bowl LIV at Hard Rock Stadium. The aluminium cups were set to eliminate more than 500,000 plastic cups annually from Hard Rock Stadium's supply chain.

## Deposit Return Schemes

- Singapore is going to introduce a 10-20¢ (HK\$0.58-HK\$1.16) deposit for all metal cans and plastic bottles by mid-2024. The new beverage container return scheme is the first phase of Singapore's Extended Producer Responsibility (EPR) system, a programme intended to hold producers responsible for ensuring their products are recycled. Under the scheme, containers gathered by the return points will be sold to waste companies, and revenue from this sale will be used to repay producers and retailers for the extra costs incurred.
- Ireland is going to launch a new Deposit Return Scheme in February 2024. Consumers who buy a drink in a plastic bottle, or an aluminium or steel can that features the "Return" logo, will need to pay a small deposit of 15-25¢ (HK\$1.24 - HK\$2.07) in addition to the price of the drink. When they return their empty, undamaged container to any retail outlet, they get their deposit back in full.
- In Sydney, Australia, a Return and Earn scheme is available under which consumers receive a 10¢ refund (HK\$0.53) when they drop off their eligible beverage containers (including cans) at return points across New South Wales, such as reverse vending machines, automated depots, and over-the-counter return points. The scheme is funded by drink suppliers who are required by law to register their containers and contribute financially to cover refunds and the operational costs of running the scheme.

### **Aluminium Waste Banks**

- A smart recycling system made of interactive smart can crushers and a mobile app have been set up in Belgarde, Serbia. After inserting cans in the smart crusher, the user gets a unique QR code and collects points. These points unlock discounts on selected products. The Solagro platform can help citizens to find the closest location to a machine. The platform also provides information about the recycling process and tracks the number of recycled cans. Each recycled can gives 10 points. After collecting 50 points, customers are offered a 10% discount voucher for an item of choice, while 100 points generate a voucher for a 20% discount, and 200 points for a 25% discount. Citizens can use the vouchers in all IDEA stores, Roda retail outlets, and Mercator hypermarkets.

### **Producer Responsibility for Metal Waste**

- In Finland, producers and importers of products in metal packaging that have a turnover of at least EUR 1 million are obliged to organise and finance waste management operations for their products. It is the responsibility of a company to sort the metal packaging that remains on its property and to arrange for its transportation to terminals that receive metal packaging waste. The aim of the legislation is to increase the reuse of packaging as recycled material and to minimise environmental damage.

## **RECOMMENDATIONS**

### **Restaurants**

Aluminum packaging should be a preferred choice compared to other sustainable materials such as glass due to several reasons. The lifetime of a can is much longer than a bottle, and not all glass bottle components are recyclable (e.g., bottle caps). Moreover, the transportation costs of a can are lower due to its lighter weight, and less storage space is required, which further decreases the potential footprint of the product. The prerequisite for responsible consumption with regards to cans and other metal materials is that they get recycled. This is relatively straightforward as cans only need to be rinsed if at all and deposited into the right container/collected by a recycling service provider.

### **Customers**

While dining out, customers can reduce metal waste by ordering drinks that are made in-house such as juices, ordering soda water made by a soda maker, or draft beer instead of canned one. Unfortunately, there are not many uses for metal waste at home besides converting cans into holders for pens or cutlery. Hence, most of the metals end up in the bin. Recycling metal is simple: rinsing and removing leftover food is all one needs to do. This will prevent the recycling bin from smelling and it reduces the risk of pests or animals being attracted by the recyclables.

## **Government**

Aluminium and steel cans need to be inserted into well-maintained separate collection arrangements under effective and cost-efficient Extended Producer Responsibility (EPR) schemes and Deposit Return Systems (DRS).

It is essential to run regular and targeted recycling campaigns aiming at long-term behavioural changes among citizens to place aluminium beverage cans in the appropriate bins, thus participating in their proper sorting.

Supporting metal waste recycling by providing collection infrastructure closer to the points of consumption is also essential. It helps increase citizens' participation since long distances and queues to redeem deposit or dispose of cans could disincentivise participation.

Setting up efficient sorting systems and infrastructure backed up by the most advanced sorting technologies is a prerequisite for better metal waste recycling. Installation of eddy current separators at sorting plants is an effective solution to this problem.

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