

## **TOMRA to Provide Technological Support in New Beverage Container Return Scheme in Singapore**

**8 April, 2024**

**Max Fong (JST Singapore Office)**

Starting from April 2025, Singapore will be rolling out a new Beverage Container Return Scheme which aims to encourage residents to return recyclable beverage containers. According to a release by the National Environment Agency (NEA), beverages that are pre-packaged in plastic bottles or metal cans will have a refundable deposit of 10 cents included in the price during purchase, which will be fully refunded when the beverage containers are returned at designated points. While similar deposit return schemes have been implemented very successfully in European countries such as Germany with high return rates of over 90 percent, Singapore will likely be the first country in Asia to start implementing the deposit return scheme. With Singapore's only landfill currently estimated to be completely filled up by 2035, recycling initiatives such as the Beverage Container Return Scheme will play a crucial part in mitigating the country's waste management issues. In order to ensure the success of the upcoming scheme, Singapore has engaged several key partners, one of which is TOMRA from Norway.

TOMRA specialises in reverse vending machines that automate the collection of used beverage containers. As one of the first businesses in its field, TOMRA has over 50 years of history in the innovation and design of their reverse vending machines which are now currently installed in over 100 countries worldwide. With plenty of experience in supporting similar deposit return schemes in other countries with their reverse vending technology, TOMRA is very committed to playing a key role in Singapore's upcoming Beverage Container Return Scheme.



**Various reverse vending machines developed by TOMRA**

As part of such efforts, TOMRA opened the TOMRA Resource Transformation Centre in Singapore back in 2022. Located at an industrial park, it serves as an open space showroom for TOMRA's cutting edge technology and innovation. Since its opening, the centre has been engaged in understanding the local recycling culture on a deeper level and looking at residents' responses to reverse vending machines, so that TOMRA can offer solutions catered to the Singapore context. Currently, TOMRA has three machines installed, one at Changi Airport Terminal 3 and two in Punggol Shore residential areas, for the purpose of testing their models and raising awareness amongst the public.



**Demonstration of TOMRA's reverse vending machine**

TOMRA offers a plethora of efficient reverse vending machines of varying sizes and capabilities, allowing the flexibility to install the machine best suited for any given situation. Some models allow only one beverage container to be returned at a time, while others allow over 100 containers to be returned in one go. The machines automatically sort and compact recyclable beverage containers through TOMRA's recognition technology, which incorporates cameras and various sensors to assess the shape, weight, barcode, type of container and whether it is empty, all within fractions of a second. It is also possible to customise this to one's needs, such as setting the exact threshold for how empty a beverage container must be before the machine would accept it. Besides the speed and efficiency of the machines, there are also measures put in place to detect cheating. For instance, if one were to

tie a string to the beverage container before inserting it for the purpose of claiming the deposit refund for the same item multiple times, this would be instantly detected and rejected, before sending an alert to those managing the machine.

Although Singapore is often referred to as one of the cleanest cities in the world, the domestic recycling rate is unfortunately relatively poor at only 12 percent with no requirements for households to sort their trash, unlike countries such as Japan with well-established practices for separating different types of waste. With the Beverage Container Return Scheme rolling out in the coming year, there is hope for the local recycling situation to improve. TOMRA's reverse vending machines' extensive impact on recycling beverage containers shows how technology can truly be a powerful enabler for circular economies.

### **Singapore's Zero Waste Masterplan**

The Singapore government announced a Zero Waste Masterplan in 2019, which aims to reduce the waste per capita being sent to the landfill by 30%, as well as increase the domestic recycling rate to 30% by year 2030. Besides the Beverage Container Return Scheme, the government is also tackling Singapore's waste management issues on various fronts. For instance, open innovation challenges were organised in 2020 and 2022 for solutions to reduce food waste, and a 3R Fund was created to support initiatives by companies and organisations looking to either reduce waste or increase recycling rates.