PAPER WASTE

BRIEF & SOLUTIONS
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ACKNOWLEDGEMENTS

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Overview

Despite technological progress and digitalisation, we still use paper a lot because it is a convenient material. Paper production is associated with such environmental damage as deforestation, air pollution, and waste problems because paper manufacturing is an energy-intensive process that requires a lot of water and emits large amounts of greenhouse gases.

In Hong Kong, a sizable chunk of total landfill waste is paper — it is the second largest component of Municipal Solid Waste (MSW) in 2020, which constituted 24% of MSW (2,643 tonnes per day). Mostly it consists of cardboard, Tetrapak, and other paper waste such as tissue paper, paper bags, and paper dining wares.

Hong Kong does not have a papermaking plant, so all generated waste paper either goes to landfills or is sold and exported abroad for recycling. Given the strict requirements of waste import in mainland China and the low rates paid to waste paper exporters, collectors and cardboard pickers are discouraged to continue their job, so piles of uncollected waste plague the streets of the city. Currently, Hong Kong authorities adopt measures to prevent a so-called paper jam crisis that took place in the city in 2017.

- **Waste Paper Collection & Recycling Services**

In 2020, the Environmental Protection Department launched the territory-wide waste paper collection and recycling services to promote the recycling behaviour of residents and enhance the quality and quantity of local waste paper recyclables. Participating contractors are required to process the waste paper locally, including screening, sorting, and baling etc., and then deliver them to various markets for recycling into paper products.

- **Development of Pulping Facility in EcoPark, Tuen Mun (expected by 2025)**

The tenant with the successful bid is expected to commence construction and operation of the pulping facility, processing no less than 300,000 tonnes of local waste paper annually (i.e. no less than 820 tonnes every day). Pulping technology consumes less land, less energy and less water, and can handle those types of waste paper barred from being exported, such as discarded receipts.

INSIGHTS FROM OUR TRIAL

In our trial with 20 F&B outlets in the SoHo Central district of Hong Kong, paper waste represented the third largest category of segregated waste. We collected approximately 1,341kg of waste paper from the 20 restaurants during the three-month trial. Paper in the restaurants was mainly cardboard, which was challenging to measure and weigh and store due to its size.

GOOD PRACTICES & INNOVATIVE SOLUTIONS

Procurement of Sustainable Paper Products
- In Hong Kong, <u>Mil Mill</u> is the first pulp mill that recycles beverage cartons. They process a maximum of 50 tonnes of beverage cartons daily and convert them into paper pulp. The mill also recycles different kinds of paper, especially composite-paper-products, into the paper pulp as well. Some of the products of the mill are tissue paper, toilet paper, and napkins.
- Hong Kong's <u>PULPAGE</u> makes soft and tough bamboo toilet paper and paper tissue. PULPAGE uses fast-growing bamboo instead of wood to make pulp, which can cope with high demands and reduce environmental damage.
- Hong Kong's <u>Acumen Paper</u> is a boutique paper merchant that sells environmentally-friendly paper made of cotton, pre-consumer fibre, and post-consumer recycled material.

Digital Receipts
- <u>Tradelink</u> is a Hong Kong company that offers e-receipt applications to send environment-friendly receipts and reduce paper costs. Also, it allows companies to generate statistics and provide instant and detailed sales data to facilitate the formulation of specific marketing strategies.
- In Hong Kong, <u>MoneyBack</u> members can review and download digital receipts in the MoneyBack App after shopping at PARKnSHOP and Watsons physical stores. This initiative improves members' consumption habits and advocates the concept of waste reduction by going paperless.
- <u>Envoice</u> in Estonia provides a tool for storing receipts in a digital format. It automatically extracts the data accurately and saves them for later review by uploading them directly into the accounting software.

Selective Collection of Paper and Cardboard
- In Berlin, Germany, the <u>selective door-to-door collection system</u> covers the whole city. Berlin has almost 100% coverage of separate collections for both households and businesses. The service is provided by several organisations. Additionally, paper collection banks are present throughout the city.

- In Sweden, <u>selective collection services of graphic paper</u> are provided nationwide through recycling stations. Paper manufacturers subsidise the establishment of collection systems in residential areas where packaging waste, magazines, and newspapers (graphic paper) are sorted and collected. Such collection systems are provided either by the municipality or by a waste management company. The collection and processing of magazines and newspapers is financed by the forestry industry.

Smart Technology for Paper Collection
- Rotterdam, the Netherlands, is using big data to improve the logistics of paper and cardboard collection. The project consists of the implementation of intelligence and cloud-based filling-level monitoring. These sensors continuously monitor the fill level of the containers and are linked to the waste department's project office via cloud servers. Real-time data analysis allows for alerts to be sent out when the bins are about 80% full.
- The municipality of Dublin implemented smart bin technologies to learn the filling level of containers remotely. It reduces over-filling problems and complaints from the residents, and it optimises logistic resources (reducing collection costs by up to 50%).

Underground Containers
- In Paris, France, the first underground containers were implemented in 2006 as a pilot project due to the waste management difficulties linked with high density and vertical housing. By the end of 2012, around 850 containers were installed. As for the positive outcomes of this initiative, the collected quantities per capita increased, the living environment became cleaner, the collection route became shorter, and collection tours became less frequent because of the implementation of big containers.

RECOMMENDATIONS

Restaurants

Going paperless in the front-of-the-house may include offering digital gift cards, emailing digital receipts, handing out recycled-paper menus, using reusable napkins, and providing other paper products made out of recycled or FSC-certified paper, or other sustainable materials such as bamboo.

In applying eco-friendly practices related to paper, restaurants should consider other associated factors, for example, sustainable printing that typically uses soy-, vegetable- or water-based ink, which increases paper recyclability.

Additionally, restaurants may consider replacing paper towels with hand dryers in their bathrooms: air dryers use fewer resources than paper towels, since towels constantly need to be produced and transported to users, and eventually take up space in the landfill. Using a standard hand dryer releases 0.02 pounds of greenhouse gas per use while using two standard paper towels emits approximately 0.123 pounds of greenhouse gases, over five times that of using a hand dryer.

In procurement, it is important to explore sustainable alternatives of tree-based papers such as sugarcane pulp, hemp, bamboo, and cotton. But the first option would always be recycled paper as it does not require additional resources for production.

Transition to a paperless back-of-the-house includes providing paperless payroll services, requesting paperless billing from vendors, and digitising newsletters. In the office, when holding business meetings or assigning tasks to the team, digital note-taking services and data storage are preferred. Minimise the distribution of hard copies of reports and operational documents if possible, and use a projector and laptop or electronic display to project the agenda and other important documents. If printing is necessary, print double-sided and in black and white.

Customers

Since paper is part of our everyday lives, we should use it wisely. From a customer's perspective, there are small steps that can be taken to reduce paper consumption. Customers can bring their own reusable bags to replace paper bags for takeaway. Likewise, customers can bring their own reusable coffee mugs instead of using wax-coated paper cups, which are not recyclable. Request for digital receipts instead of paper ones if possible because conventional receipts are almost impossible to recycle.

Government

The government may consider developing new legal policy measures, for example, a producer responsibility scheme. Manufacturers of products have to be involved in the objective to close the lifecycle of substances, components, and products from their production until they become waste.

Another suggestion is a polluter pays scheme. Those responsible for the generation of waste, and consequently, adverse effects on the environment, should be required to pay the costs of avoiding or alleviating those adverse consequences.

As for economic policy measures, the government may consider Pay-As-You-Throw schemes and tax mechanisms to discourage excessive paper waste production and to offset the costs of implementing circular economy schemes.

Additionally, it is important to keep paper and cardboard separated from the rest of municipal waste streams due to several reasons. First, paper is one of the biggest fractions (according to volume) in the dry recyclables mix, hence it has a big potential as a resource. Secondly, if the quality is good, it can be recycled up to six to seven times (an average of 3.5 times). Thirdly, paper is vulnerable to impurities, so it should be collected separately from other waste. Finally, separation at source minimises the need for subsequent sorting operations.

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