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Gearing Towards Smart and Intelligent Waste Management



Waste reduction and the transformation to a circular economy has always been one of the prime focuses of the Government. Being a forerunner of sustainable development which has identified “Circular Economy” as one of our environmental focus areas, BEC is proud to be part of the movement in motivating waste reduction and low-carbon transformation in Hong Kong. Funded by The Hong Kong Jockey Club Charities Trust and supported by the Environmental Protection Department, BEC had the pleasure to launch the **BEC Jockey Club Intelligent Resource Management Programme (“IRMP”)** in August 2018, aiming to drive practical changes and encourage effective waste management.

In the 3-year Programme, BEC successfully engaged 202 local schools, commercial office buildings and private residential buildings and developed a waste performance benchmarking system among these premises. By deploying smart technologies on waste and recyclable data collection and monitoring, property management companies of the participating premises **can monitor their waste reduction progress and benchmark against other buildings** in the same category. To influence and drive behavioural change of the building users, BEC also facilitated in enhancing recycling facilities, conducting waste audits, and organising engagement activities to promote waste reduction and clean recycling.

Paving ways for more discussions, here are the key observations and learnings from BEC and the relevant parties of participating premises throughout the 3-year journey:

Key finding 1:

What gets measured gets managed!

Capturing waste data plays an important role in effective waste management. Without the **availability of reliable waste and recyclable data**, it is not easy to determine points of weakness, performance baseline, and forward-looking yet achievable waste reduction target. More importantly, it is challenging to persuade decision-makers to put effective waste management on the focal point and certainly unrealistic to influence building users for behavioural change.

For this reason, BEC strongly believes that it is of vital importance to facilitate participating premises to **manage resource intelligently**, which is one of the key visions of IRMP. With the provision of smart scales and a series of supporting programmes, we have observed **encouraging waste reduction** in both commercial offices and private residential buildings, marking a 19.89% and 2.68% average reduction respectively on the amount of waste disposal when comparing the periods of 2019/20 and 2020/21.



Smart waste monitoring system

Key finding 2:

Effective waste management through benchmarking across properties

The waste performance benchmarking tool has been successfully established via smart waste management. During the project period, participating buildings could monitor their own waste performances and compare with peers regularly, which facilitated property management teams to **identify rooms for improvement and create measurable goals** by defining success based on other buildings' performance.

The benchmarking tool is particularly valuable to the participating property management companies and property developers of smaller scale. Since they generally lack access to adequate data unlike other sizable companies in the same industry, the benchmarking tool has offered them a convenient way to compare against the waste performance of other properties, hence **greatly facilitating their decision-making process** by defining improvement priorities.

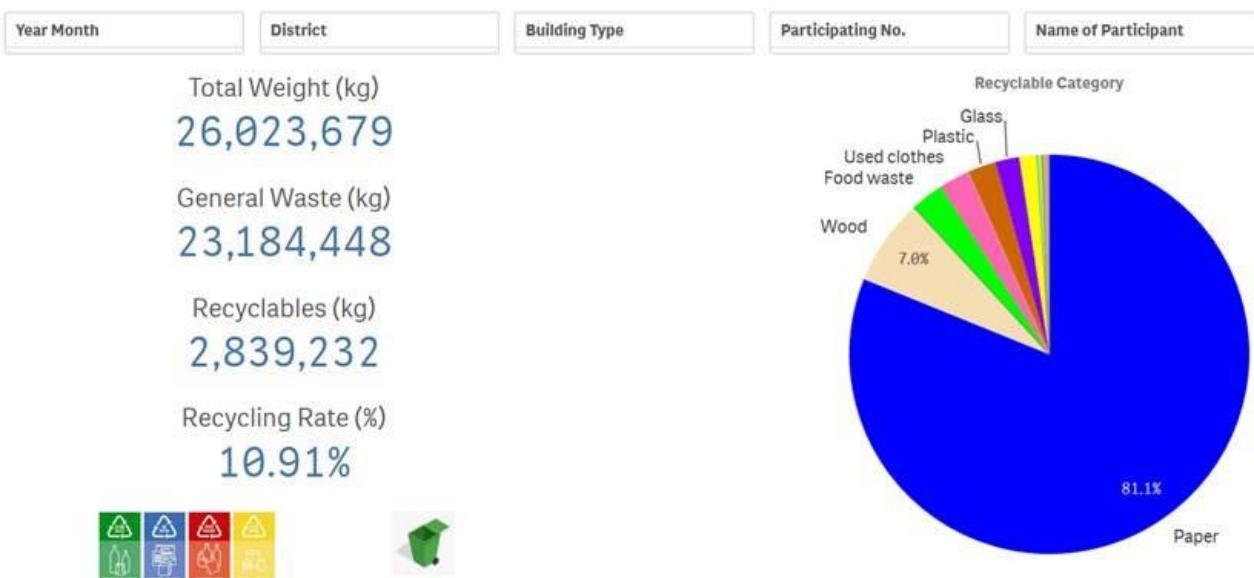
Given the continued efforts of the participating buildings in collecting waste data systematically during the past 2 years, the benchmarking tool of IRMP has gained certain exemplifications. The average waste disposal per capita of participating commercial offices and private residential buildings in IRMP during the period of 2019/21 is 0.13kg and 0.42kg respectively. BEC believes that benchmarking against buildings in IRMP can definitely drive meaningful improvements on waste reduction and clean recycling with the **employment of appropriate initiatives and right supporting facilities**. BEC also hopes to expand the database of the benchmarking tool by inviting more buildings to join and to reach out to more diverse building types in Hong Kong soon.

Key finding 3:

Identification of optimal mix of the recycling facilities

While the provision of recycling facilities is a common practice among most buildings in Hong Kong, the facility combinations might not be optimal to fit the recycling demand of individual building: some buildings might have a higher demand for wastepaper recycling while some might collect a considerable number of plastics and food waste. By deploying smart technologies on recyclable data collection and monitoring, this could assist property management companies in **making informed decisions on the provision of recycling facilities**. BEC also provided suitable recycling facilities to fill in the gaps such as recycling bins and food composters to the participating buildings for their continued use in the future.

Report 1: Resource Recycling Performance



Waste and recyclable data analysis report in Intelligent Resource Management Platform

During the period of 2019/21, the average recycling rate of IRMP participating offices and residential buildings was 18.67% and 5.55% respectively. Participating commercial office buildings exhibited better waste performance than private residential buildings in terms of both waste disposal per capita and recycling rate. BEC believes that other than the impact of work-from-home arrangement of many companies under COVID-19 control measures, a very possible attribute is the **substantial amount of food waste generated in residential buildings** were not recycled properly. Although BEC has provided food composters to buildings through IRMP, the greater obstacle goes to the operational challenges of streamlining collection and downstream treatment, which needs to be tackled through collective efforts in the foreseeable future.

Looking forward

Through IRMP, BEC observed that there is a growing demand in the industry seeking for a more comprehensive and reliable waste management system along with the introduction of new initiatives/ policies by the transnational society (e.g. Business Ambition for 1.5°C by Science Based Targets) and the government (e.g. Municipal Solid Waste Charging). Looking ahead, BEC hopes to **extend the programme to a wider category of buildings in Hong Kong** such as non-government organisation premises and hotels and to work firmly to support the government's more aggressive position in building up a circular economy and achieving carbon neutrality by 2050.

About Business Environment Council Limited 商界環保協會有限公司

Business Environment Council Limited (“BEC”) is an independent, charitable membership organisation, established by the business sector in Hong Kong. Since its establishment in 1992, BEC has been at the forefront of promoting environmental excellence by advocating the uptake of clean technologies and practices which reduce waste, conserve resources, prevent pollution and improve corporate environmental and social responsibility. BEC offers sustainable solutions and professional services covering advisory, research, assessment, training and award programs for government, business and the community, thus enabling environmental protection and contributing to the transition to a low carbon economy.

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