BUSINESS ENVIRONMENT COUNCIL
商界環保協會

# BEC Waste Management Advisory Group:

# Best Practice Case Studies

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

Business Environment Council Limited 商界環保協會有限公司 ("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 programmes for government, business and the community, thus enabling environmental protection and contributing to the transition to a low carbon economy.

## About BEC Waste Management Advisory Group

Formed in March 2013, BEC Waste Management Advisory Group ("BEC WM AG") advocates waste management strategies and policies from business perspective, and shares and promotes the adoption of local and international best practices on waste management among BEC members and the wider community. The objectives of BEC WM AG are:

- Act as the advisor to BEC Board and membership on matters related to waste management practices and policies
- Create a platform for BEC Executive Committee to engage relevant government and regulatory bodies on waste management related matters
- Foster waste management culture among BEC members and the broader business community in Hong Kong
- Build capacity for waste management among BEC members and the broader business community in Hong Kong
- Forge collaborative links between local and global expertise related to waste management

**BEC WM AG Steering Committee (2015 – 2017)**

| | |
|---|---|
| **Chair** | |
| Ir Edward Chan | Henderson Land Development Company Limited |
| **Vice-Chair** | |
| Ms Agnes Li | Business Environment Council Limited |
| **Members** | |
| Mr Thomas Yeung | Environmental International Limited |
| Mr Brian Kam | Gammon Construction Limited |
| Dr Calvin Lee Kwan | Link Asset Management Limited |
| Mr K K Chan | SUEZ environnement |
| Ms Angela Chan | Sun Hung Kai Properties Limited |
| Dr Ir Shelley Zhou | The Hong Kong Jockey Club |
| Mr Joe Zorn | Veolia Environmental Services China Limited |
| Ms Grace Cheung | Wheelock Properties (Hong Kong) Limited |

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**BEC WM AG Ordinary Members (as of October 2015)**

| | |
|---|---|
| Mr Freeman Cheung | AECOM Asia Company Limited |
| Mr Tommy Wan | Airport Authority Hong Kong |
| Mr Roberto Vazquez | ASB Biodiesel (Hong Kong) Limited |
| Ms Phyllis Ng | Baguio Green Group |
| Mr Tony Wong | BASF East Asia Regional Headquarters Limited |
| Mr Xu Chun Liang | C&G Environmental Protection Holdings Limited |
| Mr Calvin Yip | Centre for Environmental and Development Studies (CEDS) |
| Mr Chris Lau | China Harbour Engineering Company Limited |
| Mr Victor Li | Dunwell Enviro-Tech (Holdings) Limited |
| Ms Peann Tam | Eco-Greenergy Limited |
| Ms Canny Wong | Fuji Xerox (Hong Kong) Limited |
| Ms Carmen Ng | Great Eagle Holdings Limited |
| Mr Donald William Johnston | Green Island Cement Holdings Limited |
| Mr Henry Ngai | Hong Kong Organic Waste Recycling Centre |
| Mr Kevin Edmunds | Hong Kong Science and Technology Parks Corporation |
| Mr Michael Louie | Integrated Waste Solutions Group Holdings Limited |
| Mr Eric Lau | Jones Lang LaSalle Limited |
| Ms Rikki Stancich | Leighton Asia, India and Offshore Limited |
| Mr Kenny Ling | Li Tong Group |
| Ms Grace Ko | Lucky House Group Limited |
| Ms Lew Mei Ling | Mayer Brown JSM |
| Mr Jon Pavey | Mott MacDonald |
| Ms Pua Mench | Ocean Recovery Alliance |
| Mr Vincent Lau | Perfect Green Supplies Company Limited |
| Mr Franklin Zee | Powerz Enterprises Limited |
| Mr Paul Davison | Proteus Environmental Communications Hong Kong Limited |
| Mr Pierre Bousquet | Scania (Hong Kong) Limited |
| Mr Ray Choi | Schneider Electric (Hong Kong) Limited |
| Mr Harold Yip | Secure Information Disposal Services Limited |
| Mr Maverick Leung | Sun Ngai International Enterprise Limited |
| Ms Evelyn Wong | Swire Properties Limited |
| Mr August Tiu | The Baroque On Lamma Limited |
| Mr William Wong | The Hong Kong and China Gas Company Limited |
| Ms Anna Tse | The Hongkong and Shanghai Banking Corporation Limited |
| Prof Poon Chi Sun | The Hong Kong Polytechnic University |
| Ir Alex Law | The Jardine Engineering Corporation Limited |
| Mr Joseph Chan | Trend China Limited |
| Ir Cheng Hok Hing | Yau Lee Holdings Limited |

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## Objective of BEC Waste Management Advisory Group: Best Practice Case Studies

To establish a platform for BEC Waste Management Advisory Group ("BEC WM AG") members to share business waste management practices with the wider Hong Kong community.

## Acknowledgement

The working team of "BEC Waste Management Advisory Group: Best Practice Case Studies " would like to thank the following BEC WM AG members for contributing their case studies:

- Airport Authority Hong Kong
- Baguio Green Group Limited
- Fuji Xerox (Hong Kong) Limited
- Gammon Construction Limited
- Link Asset Management Limited
- Lucky House Group Limited
- Swire Properties Limited
- The Baroque on Lamma Limited
- The Hong Kong Jockey Club

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# Best Practice Case Studies

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# Airport Authority Hong Kong (Case Study 1)

## Organisation Background

Airport Authority Hong Kong ("AAHK") is a Government-owned company responsible for the development and operation of Hong Kong International Airport ("HKIA").

**Nature of Business**
Airport management

**Waste Challenge**
Food waste recycling

**Applicable to**
Whole airport community

**Implementation Period**
2003 — Present

## Objective

To promote food waste recycling.

## Strategy, Plan & Methodology

Food waste recycling started at HKIA in 2003 with the use of on-site food waste composting machines. The compost produced has been used in the landscaping areas of the HKIA.

The programme was initially implemented on a trial scale with the participation of a number of restaurants in the terminal buildings. The local food waste recycling industry grew slowly until 2011, when AAHK began working with a contractor, Kowloon Biotechnology Limited, to recycle food waste into animal feed. Since then the food waste recycling programme has been expanded to cover around 100 airport business partners, including restaurants and lounges operating in terminal buildings, as well as airline catering companies, hotels and cargo terminals.

Currently, AAHK's food waste is collected by South China Reborn Resources (Zhongshan) Company Limited in EcoPark. They utilise fermentation technology to produce high protein content powder from food waste and produce animal feed by adding various ingredients required.

## Risk Management

In order to avoid hygiene issues and mixing of food waste with general waste, operators are required to separate food waste at source into clearly identified coloured bags and designated food waste bins in refuse rooms. AAHK offers free coloured bags and recycling bins to tenants to facilitate food waste separation.

## Stakeholder Communications

AAHK organises regular meetings with representatives of all airport business partners on environmental issues. During the planning phase, comments and suggestions for the food waste recycling programme were collected from all representatives in order to solicit their support. Before full implementation, AAHK selected a couple of business partners for trial. The trials were successful and the results were shared with the business partners to secure their support.

## Results

In 2014, about 1,200 tons of food waste was collected and recycled from HKIA through this programme.

## Costs & Benefits

The collection and treatment of food waste at HKIA requires recurrent operating costs that are covered by AAHK. However, the programme has cultivated an early buy-in for separating food waste from general municipal waste and would become a cornerstone for the success of the implementation of the Municipal Solid Waste Charging Scheme in the future. The project also demonstrates the potential for collaboration between business partners to accelerate the rate of ecological footprint reduction.

## Other Information

In 2014, recognising that there was extra capacity in the food waste collection vehicles, the programme was extended beyond the airport island through a pilot scheme to cover two shopping centres under Swire Properties Limited and Link Asset Management Limited respectively in Tung Chung. This pilot was successful and both companies had expressed their intention to expand the collection of food waste services for their tenants.

# Airport Authority Hong Kong (Case Study 2)

## Organisation Background

Airport Authority Hong Kong ("AAHK") is a Government-owned company responsible for the development and operation of Hong Kong International Airport ("HKIA").

## Objective

To collect and recycle waste cooking oil from restaurants at HKIA for recycle as biodiesel.

## Strategy, Plan & Methodology

In 2008, when the first local biodiesel manufacturer started commercial operations, the Airport Authority Hong Kong became interested in using biodiesel to reduce carbon and toxic emissions from its vehicle fleet.

AAHK engaged with Dynamic Progress International Limited to collect and recycle waste cooking oil from restaurants in the terminal buildings. The waste cooking oil was converted to B100 biodiesel for trial use. AAHK worked with The University of Hong Kong to pilot two trials on five diesel vehicles. During the trials in 2008 and 2009, diesel vehicles were selected to use different ratios of biodiesel for emission tests. Emission test results proved that biodiesel could offer immediate emission reduction benefits. Results verified that B5 biodiesel significantly reduced dark smoke emissions by up to 50%, without affecting vehicle performance. As an added advantage, little or no modifications for biodiesel are required for transforming existing AAHK vehicles to use biodiesel, thereby allowing a swift and smooth transition with zero disruption to service.

## Risk Management

Prior to using biodiesel as standard fuel for AAHK vehicles, AAHK endeavoured to ensure that biodiesel would have no negative effect on vehicle performance, that the quality of biodiesel would be up to required standard and that there would be a sufficient supply of biodiesel to meet AAHK's needs. The trials confirmed that there was no negative effect on AAHK vehicles after using biodiesel and little or no modifications were required. In addition, biodiesel suppliers are now supplying biodiesel which complies with HKSAR government's biodiesel standards.

**Nature of Business**
Airport management

**Waste Challenge**
Waste cooking oil recycling

**Applicable to**
Whole company

**Implementation Period**
2009 — Present

## Stakeholder Communications

AAHK shared their experience and arranged a demonstration for their airport business partners. Training sessions were also provided to drivers involved in the use of biodiesel, which covered the procedures and safety measures of refilling biodiesel.

## Results

In October 2009, AAHK used B5 biodiesel as the standard fuel across its diesel fleet and set up a number of biodiesel refuelling points across HKIA. Since 2008, over 200,000 liters of waste cooking oil has been collected from restaurants in the terminal buildings and recycled into biodiesel.

## Costs & Benefits

Introducing biodiesel has enabled AAHK to make a number of environmental, economical and industrial benefits to the wider economy by reducing HKIA's carbon footprint and supporting Hong Kong's local recycling industry – creating jobs and providing green alternatives for Hong Kong's sustainable development.

## Other Information

Expanding its biodiesel ecosystem, the AAHK has facilitated recycling of waste cooking oil from airport restaurants since March 2008. Around 3,000 liters of waste oil are collected and recycled into biodiesel every month, thereby reducing greenhouse gas emissions, reducing the amount of harmful air particles and conserving fossil fuels. AAHK is promoting the concept of recycling waste cooking oil to biodiesel over other recycling or reuse options. In July 2015, AAHK joined Hong Kong Cooking Oil Registration Scheme organized by Hong Kong Quality Assurance Agency to promote the use of cooking oil from identifiable sources and proper handling of waste cooking oil.

# Baguio Green Group Limited (Case Study 1)

## Organisation Background

Originated in 1980, Baguio (stock code: 1397) is committed to create and maintain a "Clean & Green" environment for the society. Over the years, Baguio has been developed into a group of well-established and socially responsible companies providing integrated environmental services, ranging from professional cleaning, integrated pest management, horticulture and landscaping to waste collection and recycling.

## Objective

Baguio targets to reduce paper usage and collect all aluminium cans and plastic bottles in the office for recycling. Other recyclables, such as waste electrical and electronic equipment (WEEE), food waste, rechargeable batteries, glass, chemical and clinical waste, will be delivered directly to Environmental Protection Department's designated treatment facilities for recycling.

## Strategy, Plan & Methodology

There are several strategies adopted in Baguio. Firstly, the company encourages staff to use recycled paper to print less-important documents. Recyclable collection bins have been placed in the office to collect paper, plastics and metal recyclables. Lastly, Baguio collaborates with local non-governmental organisation (NGO) on various food recycling schemes by providing logistics support on the collection and delivery of unconsumed food to the needy during festivals (Chinese New Year, Mid-Autumn Festival, etc.), so to encourage food donation and reduction of food waste.


**Nature of Business**
Integrated Environmental Service

**Applicable to**
Whole company

**Waste Challenge**
Waste electrical and electronic equipment (WEEE), food waste, glass, rechargeable batteries, chemical and clinical waste

**Implementation Period**
1995 — Present

## Stakeholder Communications

Educational flyers are available in pantry and next to copier or printer. Information on the food recycling schemes are also disseminated to staff through emails and posters.

## Results

Under Baguio's policy on corporate social responsibility, staff receive a better understanding on waste management and are more conscious on waste reduction. For example, they bring their own mugs for drinks instead of using disposable cups in office. Besides, Baguio arranges its company vehicles to send the recyclables collected in office to the sorting facility for recycling.

## Costs & Benefits

Paper usage has been reduced. While the total saving is insignificant for the entire company, apparently there is positive impact on the environment and the awareness on environmental protection of staff has been enhanced.

# Baguio Green Group Limited (Case Study 2)

## Organisation Background

Originated in 1980, Baguio (stock code: 1397) is committed to create and maintain a "Clean & Green" environment for the society. Over the years, Baguio has been developed into a group of well-established and socially responsible companies providing integrated environmental services, ranging from professional cleaning, integrated pest management, horticulture and landscaping to waste collection and recycling.

## Objective

Baguio provides the service user with one-stop confidential waste destruction and recycling services from collection, destruction, recycling and disposal of commercial items including but not limited to papers, defected or expired goods and port withdrawal materials.

The client in this case study is an international insurance company.

## Strategy, Plan & Methodology

The client highly concerns the services lead time, potential security issues and level of destruction. The following procedures and arrangement are applied to fulfill the client's requirements:

Potential security issues:

RFID (Radio Frequency Identification) technology is adopted to keep track of the confidential documents at all the time from collection, transportation to destruction. RFID tags together with Global Positioning System are installed in the containers to trace the location of the collected documents, so that the client, through real-time monitoring, can ensure the confidential documents and materials are handled properly. Upon the completion of the services, the client will be notified by a confirmation email which contains a report with photos.

All collected confidential documents are sent to Baguio's destruction center immediately after leaving each collection point. Upon arrival, all the collected confidential documents are shredded within the day of collection.

**Nature of Business**
Integrated environmental service provider

**Applicable to**
Whole company

**Waste Challenge**
Confidential materials including but not limited to papers, defected or expired goods and port withdrawal materials

**Implementation Period**
August, 2014 — Present

Level of destruction:
All collected documents are shredded twice to fulfill the European Security Standard (P4 level) to avoid potential leakage of confidential information.

Committed services lead time:
The destruction center is solely used to process confidential documents so to ensure that all confidential documents collected from the client would be destroyed within the shortest period of time.

Recycling and disposal:
Most shredded papers are suitable for recycling. For those shredded paper without any recycling value are baled to reduce its volume prior to disposal.


## Stakeholder Communications

The client is allowed to observe the onsite destruction processes upon request. Besides, all relevant information of the process are well communicated with the client through a detailed services report.

## Results

The results vary among clients and are also depending on the material collected. In general, around 5-7 tons of waste paper are shredded per day. It is estimated that around 85%-90% of the shredded paper can be recycled for each service.

## Costs & Benefits

This is a win-win situation for Baguio and the society. From Baguio's or client's perspective, potential leakage of confidential information is significantly avoided. Recycling of paper can reduce the amount of waste being disposed of to the landfills and demonstrate Baguio's commitment on corporate social responsibility.

# Fuji Xerox (Hong Kong) Limited

## Organisation Background

Established in 1964, Fuji Xerox (Hong Kong) is committed to provide leading-edge Information and Communications Technology (ICT) specializing in document management consultancy to every industry through a full range of solutions and services – from multifunction devices with comprehensive functions of copy, print, fax and scan; production printing systems; document management and workflow software; to enterprise print services, document supply chain management and business process services.

**Nature of Business**
Information and Communications Technology (ICT)

**Applicable to**
Whole company

**Waste Challenge**
Waste Electrical and Electronic Equipment (WEEE)

**Implementation Period**
2004 — Present

## Objective

Fuji Xerox (Hong Kong) targets to achieving "Zero Landfill", "No Pollution" and "No Illegal Disposal" in end-of-life product stewardship in addition to general waste management.

## Strategy, Plan & Methodology

Based on the basic 3R (Reduce, Reuse, Recycle) concept applied on general waste management, Fuji Xerox established an "integrated recycling system" aiming to reduce environmental loads of its products throughout their life cycles. On the basis of a "closed loop system", products sold to the market are recovered into its product design process under stringent quality assurance control. In 2004, Fuji Xerox established its own Recycling Centre to manage the company's local waste electrical and electronic equipment (WEEE).

## Risk Management

In addition to the stringent corporate governance per the Group's internal control and Japanese version of Sarbanes-Oxley (SOX) deployed, Fuji Xerox (Hong Kong) has achieved ISO 22301:2012 Societal Security – Business Continuity Management Systems (BCMS) certification since 2013.

## Stakeholders Communications

Since 2010, Green Tours have been organised to showcase the stakeholders Fuji Xerox's green operations and solutions at the Recycling Center. The company releases the Sustainability Report under the Global Reporting Initiative (GRI) G4 Sustainability Reporting Guidelines and communicate its 360° of Sustainability™ initiative. Corporate Social Responsibility (CSR) is well embedded into the company's management approach to address social issues along Fuji Xerox's value chain.


## Results

Fuji Xerox takes responsibility for all end-of-life products in manufacturing process, they are being reused or recycled to achieve 99% recycling rate at the Asia-Pacific remanufacturing factory in Thailand. As of March 2015, Fuji Xerox (Hong Kong) had managed over 9,000 tons of used products (WEEE) and regenerated them into raw materials.

## Costs & Benefits

Fuji Xerox (Hong Kong) regards the waste management cost, more than a million Hong Kong dollars per year, as an environmental expenditure which is reported through Sustainability Reporting. The used product management helps reduce landfill burden. More importantly, it is the company's key CSR initiative to address international and local social issues. The raw materials regenerated from collected WEEE are input to new production process which means the cost required to purchase new materials is reduced.

Fuji Xerox (Hong Kong) also earned lots of credit from stakeholders through waste management programmes. Green Tour engaged more than thousands of stakeholders to understand the company's green waste management practices while the Visible Green Campaign further promotes the importance of waste management. These remarkable achievements together with the company's low carbon operations and solutions have been recognised by the public through winning the Hong Kong Awards for Environmental Excellence Sectoral Award (Wholesalers and Retailers Sector) Gold Award in 2011, HKQAA CSR Plus Index 2014 and Caring Company 10 Years+ Logo. These honors represent Fuji Xerox's commitment truly helps the sustainable development of the society by adding values to different stakeholders in the value chain.

## Other Information

Starting from 2013, the company has launched a Visible Green Campaign to appreciate customers' support on WEEE recycling. Customers who returned the multifunction devices to Fuji Xerox will be presented with Green certificates plus a small bottle of recycled plastics.

# Gammon Construction Limited

## Company Background

Headquartered in Hong Kong, Gammon Construction Limited ("Gammon") is a leading construction and engineering contractor delivering high quality projects throughout China and Southeast Asia, as well as offering innovative solutions and services to its customers.

Gammon undertook the Midfield Concourse Works of the Hong Kong International Airport, which involved the construction of a five-level Midfield Concourse, including 20 aircraft stands, two taxiways, extension of the APM tunnel from Terminal 1 to the Concourse, and extension of the South Runway Road (See Figure 1).

**Nature of Business**
Civil and Building Construction

**Applicable to**
Construction

**Waste Challenge**
Minimising disposal of excavated materials and broken concrete

**Implementation Period**
March, 2012 — September, 2015

## Objective

The Project aimed to address the challenge of waste management by minimising the transportation and off-site disposal of excavated materials and broken concrete, so as to relieve pressure imposed on the Government's public fill facility.

## Strategy, Plan & Methodology

According to the Project's cut and fill balance evaluated during the planning stage, 780,000m$^3$ of excavated materials would be generated, with a surplus of 340,000m$^3$ that would have to be discarded off site.

In view of the environmental impact of the excavated materials, the Project has expedited efforts to address the problem with a series of strategies. In addition to the strict implementation of site sorting and stockpiling for backfilling at the later stage, the Project envisioned to set up a crushing plant on-site, for the purpose of crushing hard materials, including boulders or rocks encountered during the excavation.

Those crushed materials would be expected to bring tangible benefits to the construction of the Project. They could either be reused as sub-base fill material or recycled as aggregates and used in the on-site batching plant, which was then established to supply concrete for the Project.

With the formulation of the above initiatives, the Project targeted to reuse about 120,000m$^3$ from the total of 340,000m$^3$ of the materials deemed to be unsuitable for backfilling.


Figure 1 Overview of the Project

## Stakeholder Communications

With the generous support from the client, Gammon engaged with various government departments for the establishment of the on-site crushing plant. It liaised extensively with Lands Department, Building Department and Fire Services Department to address land use issues and building regulation requirements concerning relevant approvals. Having worked closely with the Environmental Protection Department for over 12 months, Gammon successfully obtained the Specified Processes license for the operation of the site crushing plant.

## Results

Operation of the site crushing plant was ultimately commissioned in January 2015. It was capable of turning selected hard materials excavated from the construction into aggregates of suitable size for backfill reserves and feeding to the on-site batching plant for the production of concrete. With the effective implementation of above strategies and other innovative proposals, the Project took pride in winning the Gold Award in the Construction Industry category in the 2013 Hong Kong Awards for Environmental Excellence.

## Costs & Benefits

- Expect to turn 120,000m$^3$, equivalent to 15.4% of the total excavated materials, into suitably-sized aggregates for later backfilling. The figure below illustrates the waste distribution analysis (see Figure 3).
- Avoid the disposal of excavated materials at the Government's fill banks.
- Minimise carbon emissions from the waste haulage and import of materials, thus the impact to the air quality.
- Save the cost of purchasing aggregates for concrete production.
- Save disposal levies at the Government fill bank.
- Reduce the number of truck trips as well as transportation fees to the Government's fill banks.


Figure 2 The crushing plant with material segregation

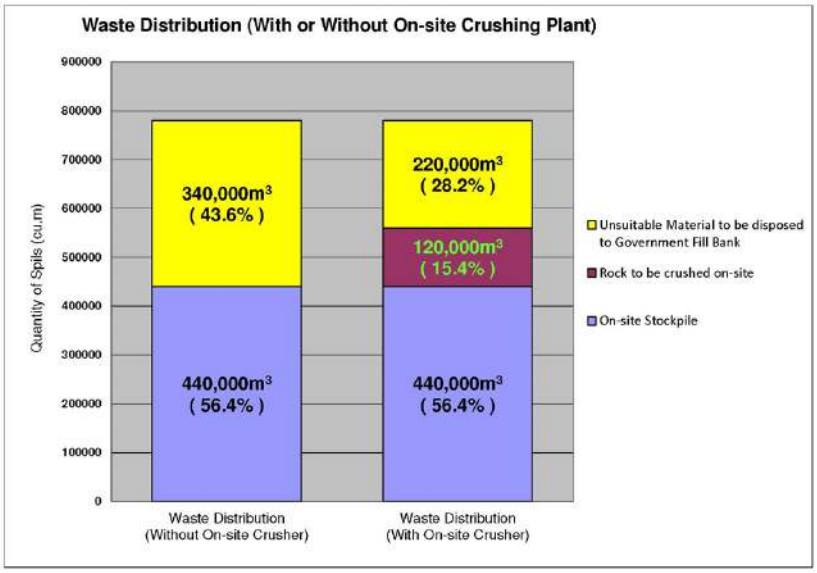



Figure 3 Waste distribution analysis

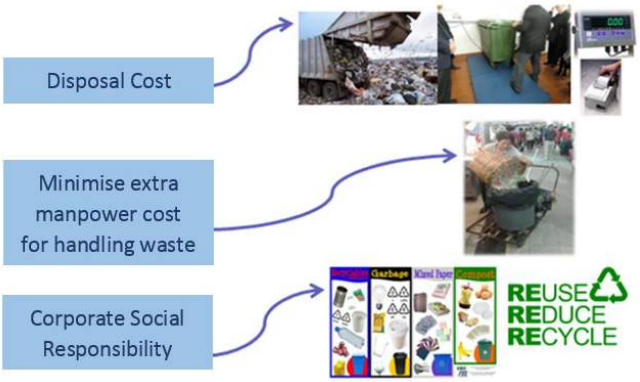
# Link Asset Management Limited

## Organisation Background

Link Real Estate Investment Trust is the first real estate investment trust (REIT) listed in Hong Kong, and currently Asia's largest REIT and one of the world's largest retail focused REITs in terms of market capitalisation. Spanning Hong Kong, Beijing and Shanghai, the portfolio owned by Link REIT consists of properties with an internal floor area of approximately 11 million square feet ("sq ft") of retail space, a gross floor area of approximately 816,000 sq ft of office space, approximately 76,000 car park spaces, and an office project under development. In 2014, Link REIT became a constituent stock of the Hang Seng Index.

## Objective

There are data collection and tracking programme on waste collected at Link's properties. Link's target is to minimise impacts on environment and handling costs of waste.




## Strategy, Plan & Methodology

Link follows a six-step road map to develop its waste management programme. Link begins by tracking waste data; quantifying its waste amount and prioritising waste-reduction areas, such as eliminating the amount of waste from source, reusing or recycling materials on-site and off-site. Strategies and implementation plan on how to manage the collected waste and related logistics were then developed. The waste data collected are examined regularly to evaluate the performance on waste reduction. Improvement measures are also formulated whenever necessary.

| | |
|---|---|
| **Nature of Business** | **Waste Challenge** |
| Real Estate Investment Trust | Waste from properties |
| **Applicable to** | **Implementation Period** |
| Owned properties | February, 2014 — Present |


To facilitate the waste management programme, Link conducted a pilot study on the general waste disposal, recyclable collection and general operating practice in ten of its shopping centres, ranging from small to large sizes with or without wet market. In which the Radio Frequency Identification (RFID) Technology is adopted at Lok Fu Plaza and Market to assist collection of waste data. Different types of waste are separated prior to measurement. The waste data collected are subsequently analysed and circulated among senior management of the property management team and sustainability team. The waste data collected are essential for Link to understand the waste profile of the site and plan for measures to reduce waste.

RFID is being used in Lok Fu Plaza and Market as a pilot study. It helps saving a lot of manpower to record the weight of the waste and enhancing data accuracy.

## Risk Management

A working group comprising of General Manager – Sustainability, Sustainability Manager and Task Group Leaders from different departments (e.g. Leasing, Property Management, Repair and Maintenance, Project and Planning, Engineering Team, etc.) oversees, coordinates and supports the waste management programme. The working group also coordinates all housekeeping arrangement (e.g. logistics support) with tenants and service providers, and reports any possible risk to the senior management.

## Stakeholder Communications

The background of waste management programme and the related protocols are introduced to all concerned employees during the briefing sessions. Educational material on waste management has also been included in the e-Learning programme for staff. Besides, Link works closely with service providers to resolve any challenge and to further strengthen the partnerships between them. Briefings, training classes and weight-in station handbook have also been provided to the cleaning contractor of Link.

46 Garbage collection points equipped with weigh-in station

## Costs & Benefits

The cost for procuring 60 weigh-in stations amounted to approximately HKD730,000. And the cost for procuring RFID equipment and software was HKD31,000. It also involved about 10% additional manpower cost to handle the waste separation and weighing.

Benefits:

Through the pilot study on waste, Link gained a better understanding of the amount of waste produced in its properties, and identified the source of waste and what types of waste are going into the waste stream in each property. This helps Link to streamline and standardise the waste handling procedures, and determines possible ways for waste reduction. This could help the company on cost saving upon the implementation of the Municipal Solid Waste Charging Scheme.

Environmental benefits - The waste management programme reveals additional ways to reduce Link's negative environment impact. For example, food, paper, cardboard, metals, plastic, and glass are recycled hence the amount of waste going to landfills as well as the associated greenhouse gas emission are minimised.

Health and safety benefits - Developing and implementing a comprehensive waste management programme ensures that staff understand and follow proper handling and disposal requirements, leading to a healthier, safer environment.

# Lucky House Group Limited

## Organisation Background

With almost 40 years of history, Lucky House Group Limited ("LHG") is famous for its delicate dim sum and dishes. LHG regards credibility as its core idea and sincerity as corporate culture. It brings a new trend to Chinese restaurants in Hong Kong and also diversifies its portfolio beyond Chinese restaurants.

**Nature of Business**
Food and Beverage

**Applicable to**
Food and Beverage, banqueting

**Waste Challenge**
Food waste

**Implementation Period**
January, 2014 — Present

## Objective

LHG targets to minimise food waste generated from restaurants.

## Strategy, Plan & Methodology

LHG initiated a programme called "The Green Luck Banquet" for achieving its company target. The "Green Luck Banquet" programme is co-organised with Green Monday, a local social enterprise and two local Non-Governmental Organisations (NGOs) which recycle waste food, namely Foodlink Foundation and Food Angel. LHG's Chinese restaurant brand, the Banqueting House (with three restaurants) has joined this programme with the aim of promoting green habit and cherishing food by recycling leftover food in banquets and delivering them to people in need. Uncooked food in banquets will be stored for preparing other meals in the restaurants.

## Risk Management

The leftover food must be stored with concealed food boxes under 4 degree Celsius or below in hygienic condition to ensure their food safety.

## Stakeholder Communications

To customers:

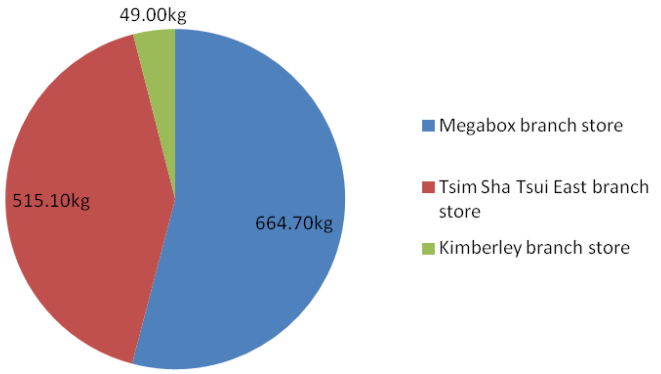
In every banquet, LHG encourages its customers to join the programme and seeks their authorisation before the food recycling process. Our customers are not required to pay extra costs to join this programme and they are also welcome to take away leftover food.

To partnering NGOs:

LHG provides authorisation letters from customers to Green Monday in which they will arrange the food collection process including providing collection boxes for us to storage the leftover food. After each banquet, food collection boxes filled with leftover food will be stored overnight and collected by our partnering NGOs on the next day. The NGOs measure the total weight of the food and notify LHG of the beneficiary parties who receive the food.

## Results

From January 2014 to January 2015, the three restaurants under the Banqueting House brand have donated 1.228 tons of leftover food. In addition, notably more food was collected during the peak season of banquets from October 2014 to February 2015. The percentage of banquets joining this programme has remained steady (around 50% of total banquets) throughout the year. No extra cost has been incurred by LHG as the operating cost has been absorbed by the partnering NGOs .




## Costs & Benefits

The programme developed an atmosphere of cherishing food among traditional Chinese banquet customers. It has enhanced LHG's image in corporate social responsibility and caring for the environment.

# Swire Properties Limited

## Organisation Background

Swire Properties is a Hong Kong-headquartered developer and manager of commercial, retail, hotel and residential properties, typically large scale mixed-use developments. Over the course of its 40-year history, Swire Properties has taken the philosophy of "building communities" – creating long-term value in the communities – and applied it to a wide range of projects around the world. This comprehensive and integrated approach to sustainable development forms the core of the business decision making of Swire Properties, and is the key to its continued success.

**Nature of Business**
Property Development and Management

**Waste Challenge**
Waste generated in all operations

**Applicable to**
All operations and developments in Hong Kong

**Implementation Period**
2005 — Present

## Specific Types of Waste to be Managed

All operations report their waste management performances on a monthly and seasonal basis. Over 20 types of waste, including paper, plastic, aluminium, rechargeable batteries, fluorescent lamps, used cooking oil, office furniture, construction waste, glass bottles, toner cartridges, waste electrical and electronic equipment ("WEEE"), organic waste (e.g. food waste, coffee grounds, horticulture waste including festive plants such as Christmas trees and peach blossoms), mooncakes and mooncake tin boxes, books, textiles and red packets, are being collected and monitored regularly.

Since 2005, this information has been recorded in the company's Environmental Health and Safety ("EHS") system and regularly monitored and analysed, which helps improve its understanding of the nature and quantities of the waste generated. The EHS database was updated in 2014 to a web-based platform that can also capture and report carbon emissions data. Swire Properties uses this robust and comprehensive database to track metrics and collect data that helps the company minimise waste, reduce energy use, ensure health & safety on its premises and maintain regulatory compliance. In addition, to better manage waste, Swire Properties relies on its established waste management framework and has rolled out waste audits in 2015.

## Strategy, Plan & Methodology

Swire Properties has channeled the needs of the community and prioritised waste reduction across its portfolio and at all stages of its business operations, from design to construction to daily management and operation. The company has been organising and implementing waste management programmes to help tenants and customers effectively manage and reduce waste. These include comprehensive recycling and reuse schemes, as well as seasonal and special campaigns.

As part of the company's long-term sustainability strategy, Swire Properties takes waste management seriously and established a Waste Management Taskforce in 2012, which is in charged of developing and overseeing operational best practices, cooperative strategies and action plans. The taskforce, which includes the company's Technical Services & Sustainability Department and representatives from leasing, hotels, portfolio and building management, meets with tenants to gain a better understanding of their sustainable development expectations and needs. This has allowed the company to formulate ways to work together with tenants to achieve improvements in waste management.

Swire Properties' comprehensive recycling scheme has enabled the company to reduce waste generation at source through investing in waste equipment and facilities on its premises and conducting public awareness campaigns. For instance, in 2007, Swire Properties had one of the first retail malls in Hong Kong to install an automatic baler for compacting recyclable waste under strict quality assurance. A recycling zone has been in operation years since 2011 at Warwick House in Taikoo Place, which enables the company to centralise and streamline the recycling efforts of the tenants. EAST hotel is the first hotel in Hong Kong to use a food waste decomposer (an organic waste disposal system) and a composter was installed in Taikoo Place.

Starting in 2013, Swire Properties set annual waste reduction targets through the Hong Kong Awards for Environmental Excellence ("HKAEE")'s Wastewi$e Scheme, standardised environmental requirements of the company's tenders with cleaning contractors and increased engagement with key tenants to enhance and streamline waste management practices. In 2015, Swire Properties introduced comprehensive waste audits at all of its Hong Kong commercial portfolios.

BUSINESS ENVIRONMENT COUNCIL 商界環保協會

## Risk management

Swire Properties understands the pressing waste problem in Hong Kong especially given that Hong Kong's limited landfill space will reach capacity in a few years. The company achieved ISO 14001 (environmental management) system certifications across our Hong Kong and Mainland China portfolios. This certification allows Swire Properties to align its environmental management system (including waste) with international standards which guides the company's continual improvements of its overall performance across core environmental focus areas, including waste management. Swire Properties' Waste Management Taskforce is in place to prepare for the upcoming waste management regulatory changes and the potential impacts. For example, preliminary steps were taken to address upcoming changes with the company's voluntary participation in a domestic waste pilot scheme under the leadership of the Government, conducting comprehensive waste audits for all its commercial portfolios and incorporating such consideration in the upcoming developments , as well as enhancing environmental awareness of all stakeholders. Swire Properties continues to introduce and implement waste management solutions across the properties, in an effort to optimize our waste management practices and enhance environmental awareness of all stakeholders.

## Stakeholder Communications

Swire Properties is working with the tenants, cleansing and waste collection contractors to increase waste recovery and reduce waste disposal. Throughout the year, the company conducted several awareness campaigns, including a wide range of recycling activities and the recent waste audit exercise. The company believes in positive behavioral changes, active participation of its tenants and staff is always encouraged. Furthermore, throughout design, material selection and construction processes, the company takes waste management considerations into account and works with contractors to minimise waste generation. Swire Properties' contracts stipulate waste disposal methods and sites, and requires contractors to submit and adhere to waste management plans as well as keep disposal and recycling records during construction.

In 2014, Swire Properties introduced engagement surveys and real-time engagement exercises with tenants and service providers. It also helps its tenants and customers manage and reduce waste by monitoring the collection of more than 20 waste types through its EHS database.

## Results

Commercial properties of Swire Properties in Hong Kong annually participate in Environmental Protection Department's Programme on Source Separation of Commercial and Industrial Waste, while the residential properties participate in the Programme on Source Separation of Domestic Waste.

In 2014, all of our commercial buildings achieved "Class of Excellence" in the HKAEE's Wastewi$e Scheme, pledging to achieve over 40 types of waste recovery and reduction goals and have since maintained the certification. Additionally, Swire Properties has been actively encouraging key tenants in each of the commercial buildings to join the Wastewi$e Scheme as part of a greater effort to improve waste management results throughout its Hong Kong commercial portfolio. This comes on the heels of the long-term success when several of the company's residential buildings have partaken in the Wastewi$e Scheme to facilitate waste reduction, with five receiving "Class of Excellence" and one receiving a "Class of Good" label. Swire Properties intends to continue setting new waste reduction goals annually to uphold the Wastewi$e Scheme labels across its commercial (including hotels) and residential properties.

## Costs & Benefits

In 2013, the company diverted over 3,156 tonnes of waste from landfill. Please read our Sustainable Development reports for more information (http://www.swireproperties.com/en/sustainability/reports.aspx).

## Other Information

Glass:

All commercial buildings of Swire Properties participate in a glass recycling programme to recycle collected glass bottles into eco-bricks. More than 24 tonnes of glass bottles were collected from its commercial buildings in 2014.

Office furniture:

In 2013, the company donated over 910 pieces of furniture, including office chairs, cabinets, work stations and benches to more than 30 Non-Governmental Organisations ("NGO"s) across Hong Kong.

Mooncake tin boxes:

In 2009, Swire Properties began organising its annual Project Green Moon following Mid-Autumn Festival, which encouraged the recycling of mooncake boxes among the public, tenants and Swire Group companies. Over 3,600 mooncake boxes were collected in 2014.


Food waste:

The company partners with tenants to collect coffee grounds, food waste and horticulture waste to be processed into compost at Dorset House Refuse & Food Waste Handling Room in Taikoo Place. In 2014, 15673kg of food waste, 546kg of foliage and over 590kg of coffee grounds were recycled. The resulting product is used by Swire Properties' subsidiary landscaping company as soil conditioner at its development in Hong Kong.

WEEE:

An annual recycling campaign has taken place since 2007 for tenants and staff at Swire Properties' commercial buildings in Hong Kong. In 2014, over 90 tenants participated, achieving a 50% increase in collected electronic waste from 2013.

Organic waste:

Swire Properties participated in the inaugural Wood Recycling & Tree Conservation Scheme organised by the Hong Kong Environmental Protection Association. In 2014, the company recycled 70 Christmas trees and 81 peach blossom trees to be reprocessed into sawdust, wood pellets and fertilisers. The company also replanted over 200 tangerine trees.

# The Baroque on Lamma Limited

## Organisation Background

The Baroque on Lamma Limited (BoL) is a company committed to environmental sustainability. Its mission is to establish a role model for their staff, customers, suppliers and business partners by demonstrating "being environmental responsible is good for long-term development of the corporation".

## Objective

BoL targets to actively promote the 4R strategy — Reduce, Reuse, Recycle and Replace in their office.

## Strategy, Plan & Methodology

BoL has implemented several environmental initiatives to reduce paper usage: 1) using online platforms and emails for internal communications; 2) setting double-side printing as default; and 3) assigning a designated printing tray for the reuse of single-sided paper. BoL collects and passes all metal recyclables as well as toner cartridges to the Property Management Office for recycling. BoL also participated in the Redress clothes collection campaign in 2014 for recycling of used clothes.


**Nature of Business**
Project company

**Waste Challenge**
4R strategy in office

**Applicable to**
Company offices

**Implementation Period**
September, 2011 — Present

## Risk Management

Waste paper that contains confidential information shall be shredded prior to recycling and will not be reused.

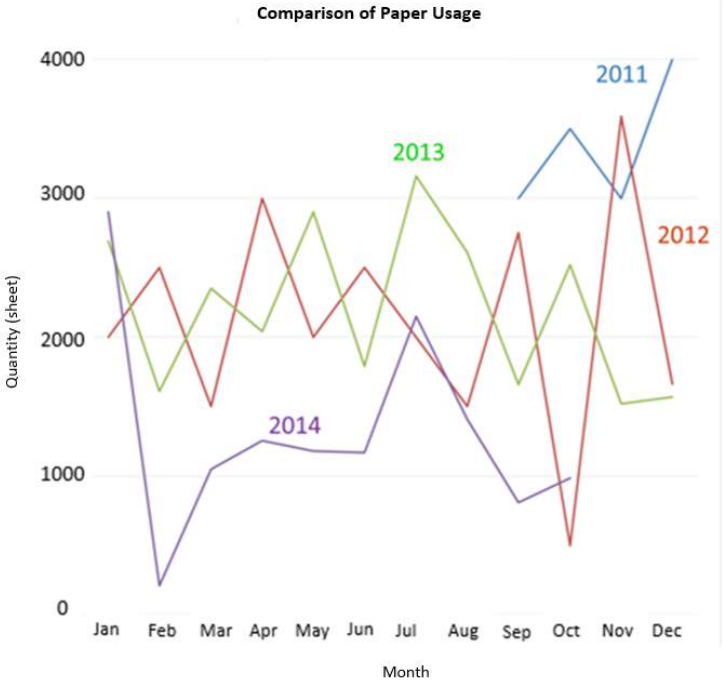
## Stakeholder Communications

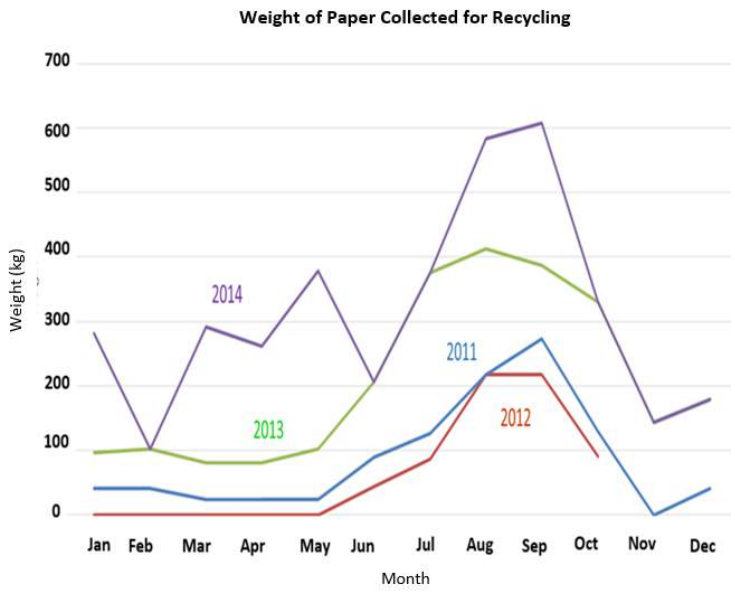
Internal Staff:
Internal information, such as the location of recycling bins in the office, will only be disseminated through emails or posting on the notice board. Besides, regular meetings are conducted to review environmental targets and achievements of BoL.

Recycling Companies:
BoL maintains close communication with the recycling companies. Educational materials on waste recycling have been provided to staff members of the recycling companies. Records of recyclables have also been provided by the recycling companies for monitoring purpose.

## Result

With staff members' support, a decreasing trend on paper usage is observed while the overall recycling rate is increasing over the years. Environmental awareness of staff has been significantly enhanced and knowledge on recycling of office materials is greatly strengthened through several years of practice. It is also revealed that such green culture has been spread from our core members to all other departments.




## Costs & Benefits

Lower expenditure on consumables like paper and stationery was resulted. Below are a few examples on cost reduction.

For intangible benefits, environmental awareness of staff on waste reduction and recycling has been greatly enhanced.

| | |
|---|---|
| Office garbage bag | Unit price: HKD26<br>2011 monthly purchasing quantity: 20<br>2014 monthly purchasing quantity: 5<br><br>Saving per month: 26x(20-5) = HKD390<br>Saving per year: HKD4,680 |
| Printing paper | Unit price: HKD19.8<br>2011 annual purchasing quantity: 27<br>2014 annual purchasing quantity: 3.6<br><br>Saving per year: 19.8 x (27-3.6) = HKD463.32 |

## Other Information

- BoL is ISO14001 certified. Its environmental management system is reviewed annually by HKQAA.
- BoL is awarded the WGO Green Office Awards Labelling Scheme (GOALS) for Year 2013-2014 and 2014-2015.
- BoL is nominated by Yan Oi Tong EcoPark Plastic Resources Recycling Centre as Friends of EcoPark 2014-2015.
- By sharing the same office with Agile Property Holdings Limited, it has achieved:
  - "Class of Excellence" Wastewi$e Label, Hong Kong Awards for Environmental Excellence
  - Gold Award, Environmental Excellence Award Paper Recycling Campaign 2014
  - Greeners Action Red Packet Recycling Action 2014 and 2015
  - Capital Outstanding Green Excellence Awards 2012

# The Hong Kong Jockey Club

## Organisation Background

The Hong Kong Jockey Club ("HKJC") is a world-class horse racing operator and Hong Kong's largest community benefactor. Operating as a not-for-profit organisation and committed to global excellence, the Club allocates its surplus for sustaining charitable and community projects, supporting the different needs of society.

## Objective

The HKJC targets to manage specific types of waste that include horseshoes, glass bottles and surplus food.

## Strategy, Plan & Methodology

Waste management strategy in the HKJC follows an internal Waste Management Policy adopted since 2009. Apart from adopting "Avoid, Reduce, Reuse and Recycle" principles for the major types of the waste, the HKJC also explored new options such as upcycling and donation. The current strategies on the specific types of waste are as follows:

1. Horseshoes: Upcycling into merchandise products by a designer; Organising Apprentice Farrier Competition to create art pieces
2. Glass bottles: Recycling into eco-bricks
3. Surplus food: Donating to food rescue and food assistance projects for those in need

**Nature of Business**
Horse racing, sporting and betting entertainment

**Waste Challenge**
Horseshoes, glass bottles and surplus food

**Applicable to**
Catering services and facilities management

**Implementation Period**
2010 — Present

## Risk Management

Horseshoes are disinfected before upcycling to prevent any possibility in spreading disease. For surplus food, the choice of food for donation has to be controlled to ensure that risk of food poisoning for the recipients can be minimised. Surplus food that is easy to get rotten will not be donated.

## Stakeholder Communications

Substantial liaison works were required to line up a partnership and to plan the logistics. The HKJC has to engage both external and internal stakeholders to ensure all parties are informed of any plan and change in existing practices.

## Results

Horseshoes:

The HKJC uses about 70,000 pieces of metal horseshoes a year. In the past, they were recycled as scrap metal but now the metals are given new life. The HKJC's marketing team has identified an upcycling opportunity for the used horseshoes. In 2012, the HKJC partnered with a local designer to recondition and craft them into useful art pieces which became popular items in the racecourse gift shops. Used stirrups were introduced for upcycling and added to the upcycling product series in 2014. Since 2010, the Veterinary Department held an annual Apprentice Farrier Competition and gave chance for apprentice farrier to create art pieces from the used horseshoes. Some of the winning art pieces are displayed in the Jockey Club Museum of Climate Change located in the Chinese University of Hong Kong.

Glass bottles:

The HKJC's Charities Trust has sponsored the Hong Chi Glass Bottles Recycling Project since 2010 to collect and recycle glass bottles into eco-bricks. To support the project, the HKJC's Catering Services collects the waste glass bottles in the kitchens and recycles around 100 tonnes of glass bottles every year to support the Project. Some eco-bricks were used at the green roof of the Jockey Club headquarters.

Surplus food:

The HKJC's Charities Trust has supported two hot meal services programmes which run central kitchens and collect surplus food from supermarkets, wet markets, restaurants and hotels. The surplus food will then be prepared into hot meals for distribution to underprivileged people. A total of 3 million meals would be delivered by the two hot meal services programmes. The HKJC's Catering Services partners with both programmes and from November 2013 to June 2015, over 28 tonnes of food has been donated. Besides, the HKJC has also recycled about 700 tonnes of food waste annually to fish feed or organic fertilisers.

## Costs & Benefits

The horseshoe upcycling competition allows apprentice farriers to learn from each other and share experience which helps advancing their skills, besides promoting a green culture within the organisation. The food donation practice makes the best use of surplus edible food and helps the people in need. These measures are good for showcasing the HKJC's sustainability practices and raising public awareness on environmental protection with minimal operating cost.