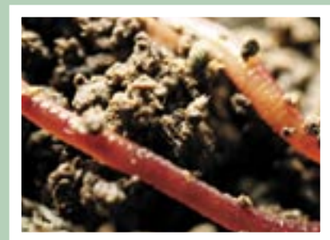
Having their fill

Recycling through vermiculture is fairly new to Hong Kong and is proving its weight in gold by helping to reduce landfill requirements



Recycling is a hot issue in Hong Kong, and the numbers speak for themselves. The city produces 15,000 tonnes of waste – or 1.36kg per person – per day, and the figure is rising.

Landfill sites are running out, so reducing consumption is everybody's responsibility. And, thanks to greater awareness, most are now willing to participate. People routinely recycle at home, and refuse excess packaging. Most recently, stores across the city have been reducing the amount of plastic bags they use.

Examples are being set in the corporate world, too, with many leading companies finding environmental solutions of their own. For some, the answer is as old as time. Companies producing organic waste are turning to a natural process of disposal using earthworms and technology.

Earthworms have been called "nature's recycling wizards" for their ability to gobble up mountains of waste, and turn it into a reusable product. The process is known as vermiculture and, at a purpose-built plant in the New Territories, 80 million earthworms are busy consuming tonnes of organic waste every day – waste that would otherwise go into landfills.

There are about 1,500 species of earthworm, but only four are suitable for this innovative recycling process. These worms have healthy appetites, eating up to half their body weight each day. The organic waste they consume is excreted as a clean, odourless and highly effective fertiliser, usable on landscapes and for food production.

Main picture: Worms can transform their food into the perfect organic fertiliser. Left: They may not be pretty, but worms can play a vital role in protecting our world's beauty.
主圖：蚯蚓在進食過程中將廢料轉化成上好的有機肥料。
左：雖然其貌不揚，但蚯蚓在保護地球方面發揮了極大作用。

Waste from the Hong Kong Jockey Club stables is transformed by worms.
香港賽馬會馬房收集的馬糞，將由蚯蚓轉化成有機肥料。

A key participant in the vermiculture pilot project is the Hong Kong Jockey Club, which saw it as a solution to the weighty issue of its stable waste. Detritus from the daily stable cleaning and horse feeding can be put to good use through vermiculture.

Waste is collected from the Sha Tin and Happy Valley stables each day and transported to the New Territories plant, where it becomes part of the worms' food supply chain. The resultant fertiliser is later sold to people who can use it on local organic farms and household gardens.

The initiative was showcased at the 2008 Beijing Olympic Games. The Games were dubbed "the green Olympics" and Hong Kong, as host city of the equestrian events, took this opportunity to pledge its environmental commitment.

When the Hong Kong Jockey Club demonstrated its vermiculture solution to the international press in the lead-up to the Olympics, it was hailed as a world-first in the mass recycling of equestrian-related waste. The club says this is only the start, and it intends to recycle 100 per cent of its organic waste.

Hong Kong's landfill problems and the success of the Hong Kong Jockey Club's experience should make vermiculture a growth industry in Hong Kong.

The Australian company operating the New Territories plant certainly believes so. The technology is suitable for all kinds of organic waste, including food scraps. Some hotels and restaurant chains are recycling their food waste via the vermiculture plant.

The company developed the technology in Australia and brought it to Hong Kong believing this was the best platform to reach emerging markets in Asia. The end product, processed into solid and liquid forms, is sold locally at B&Q MegaBox, and exported to markets in the mainland, Japan, the Middle East and Europe.

廢物再造小魔師

新近引入香港的「蚯蚓堆肥」方法，除了減少堆填區的負荷外，更可將廢料變成有用肥料，為環保付出一分力。

香港每日製造15,000公噸垃圾，即每人約1.36公斤，數字更不斷攀升，情況令人憂慮。由於香港的堆填區已不敷應用，減少消耗成為每一個人的責任。還幸近年香港人對廢物回收及循環再造的意識增加，不少家庭已自覺地加入廢料回收或減少過量包裝的行列。商界亦參與行動，近期就有過千家商戶聯手推出「日日無膠袋日」，此外亦有機構採用「蚯蚓堆肥」的天然方法來處理廢棄物。

蚯蚓可說是自然界的「廢物再造小魔師」，牠們有能力吞噬堆積如山的廢棄物，消化後將有機物變作有用的肥料。「蚯蚓堆肥」就是利用蚯蚓的消化力將有機物轉為有用原料。新界便有一家蚯蚓堆肥設施，內有8,000萬條蚯蚓每日忙於將有機廢物變成有用肥料。

現今已知的蚯蚓種類達1,500種，但只有四種可用於「蚯蚓堆肥」這種新興的廢物再造方法。這四種蚯蚓均胃口奇佳，每日可進食達到自身體重一半的食物。牠們將有機物吃掉，消化後排出體外，變成更細小簡單的物質。這些物質無味無臭，是非常有效的肥料，對園林以至蔬果種植均相當有用。

香港賽馬會是其中一家積極投放資源於「蚯蚓堆肥」試驗計劃的機構。賽馬會相信，「蚯蚓堆肥」有助解決馬房每日製造的大量廢棄物。清潔馬房所得的廢物及馬匹的剩餘糧草，每日由沙田及跑馬地運送到新界蚯蚓堆肥設施，所得的肥料可賣給有機農場及私人園圃。

「蚯蚓堆肥」於2008年北京奧運亦有採用。今屆奧運會稱為「綠色奧運」，香港作為馬術賽事的主辦城市，亦利用此難得的機會，向外界展示我們對環保的關注。賽馬會於奧運賽事舉辦前，向新聞界介紹「蚯蚓堆肥」法，外界均讚賞這個全球首次的大規模馬術賽廢料處理方法。賽馬會方面稱，於馬術賽引入「蚯蚓堆肥」只是開始，他們已計劃百分百以廢物再造方法來處理有機廢棄物。

香港堆填區飽和，加上賽馬會在「蚯蚓堆肥」所取得的成效，令這種嶄新的有機廢物處理方法，在香港有相當大的發展空間。

營運新界這家蚯蚓堆肥設施的澳洲公司表示，「蚯蚓堆肥」可用來處理包括廚餘等各種有機廢料，部份酒店及連鎖餐廳已開始使用「蚯蚓堆肥」來處理廚餘。該公司將技術從澳洲帶來香港，因相信香港可成為進入亞洲市場的起步點。其所生產的固體及液體有機肥料，現於MegaBox的B&Q有售，並出口到中國、日本、中東及歐洲市場。

據新保思生物科技有限公司執行董事謝志楷先生表示，從「蚯蚓堆肥」方法所得的肥料，經過蚯蚓的消化過程，天然養份豐富，對農作物的收成及品質，以及對抗害蟲及病毒均有益處，國際研究亦確認其肥料的功效。

使用「蚯蚓堆肥」亦有助減低溫室氣體排放及延長堆填區的壽命。長遠而言，「蚯蚓堆肥」有機會納入碳排放額度計劃，進一步推動環保。

天然廢料回收再造並非新鮮事，但於商業上的應用還處於初步發展階段，不少國家的政府已積極鼓勵其國內農場使用有機肥料，可見「蚯蚓堆肥」這方法似乎商機無限。

According to Tse Chi-kai, executive director, Sunburst Biotechnology, the fertiliser vermiculture produces is rich in natural nutrients that are released by worms during the recycling process. Among other benefits, he says, this helps to improve the yield and quality of crops, and increase pest and disease resistance. International studies endorse the efficacy of the product.

Using such technologies also helps extend the lifespan of landfill and reduces greenhouse gases. Longer term, vermiculture is expected to be incorporated into carbon credit schemes, further helping the environment.

The concept of natural recycling may not be new, but only recently has it been adapted for commercial application. With governments worldwide increasingly setting their farmers organic targets, the market potential for solutions such as vermiculture seems enormous.

Ferticast organic fertiliser from Sunburst Biotechnology is on sale at B&Q in MegaBox.
新保思生物科技有限公司旗下的有機肥料品牌Ferticast，其產品於MegaBox的B&Q有售。