

**For discussion on
22 June 2020**

**LEGISLATIVE COUNCIL
PANEL ON ENVIRONMENTAL AFFAIRS**

MANAGEMENT OF YARD WASTE

Purpose

This paper briefs Members on the overall strategy as well as the latest direction and measures to promote reuse and recycling of yard waste.

Yard Waste Management Strategy

2. Yard waste is also known as green waste or garden waste, which consists of all types of vegetation waste. This type of waste decomposes gradually in nature. Woody material is also combustible. Although Hong Kong generates about 160 to 180 tonnes of yard waste every day which is only about 1.5% of the total amount of municipal solid waste disposed of at landfills, general yard waste can be reused or recycled after proper treatment. Given that Hong Kong had not focused on yard waste previously, the Environment Bureau promulgated “A Food Waste and Yard Waste Plan for Hong Kong 2014-2022” (the Plan) in February 2014, setting out the strategy of promoting waste reduction at source first, encouraging separation and collection, and finding the best ways to treat the unavoidable portion.

3. Government departments generate and collect about 100 tonnes of yard waste every day, mainly from public works and daily clearance duties relating to routine vegetation maintenance, such as that for slopes. The Plan on the aspect of yard waste reduction calls upon government departments to minimise using plants that are just displayed during festivals, encourage replanting, and consider how to minimise yard waste generation when designing landscaping areas. On yard waste separation and collection, government departments should lead the way in developing best practices in yard waste separation and collection, so that collection can be organised systematically. The measures on yard waste treatment are to explore setting up composters on-site when space permits, using composting facilities off-site to convert yard waste into compost, and using it as

mulch for gardening or fuel etc. To this end, the Greening, Landscape and Tree Management Section of the Development Bureau (DEVB) published the “Guidelines on Yard Waste Reduction and Treatment” (the Guidelines) in July 2014 for serving as best practices for government departments regarding measures on yard waste reduction at various stages from landscape design to maintenance, and suggestions to reduce, reuse and recycle yard waste.

Current Situations of Implementation

4. To date, various departments have progressively taken forward the Plan at their own pace. For instance, the Agriculture, Fisheries and Conservation Department treats yard waste on-site in its natural habitat as far as possible, which provides habitats for wildlife and releases nutrients to the nature. Suitable tree logs are reused for making furniture or decorative items for the recreational facilities in country parks. Since 2014, the Leisure and Cultural Services Department (LCSD) has started to produce compost on-site from yard waste using garden composters at suitable venues, and has also delivered some yard waste to the Environmental Protection Department (EPD)’s Animal Waste Composting Plant for composting. At suitable new venues, LCSD has explored the installation of on-site composting facilities and replaced the planting of annuals by perennials, with a view to reducing yard waste at source. The Civil Engineering and Development Department’s greening work relating to infrastructural development, geotechnical works and greening master plan focuses on the planting of perennials suitable for local environment, with the right vegetation in the right place and choosing native perennials to encourage local ecological growth and reduce plant replacement. To promote recycling of yard waste left over after Christmas and the Lunar New Year, the EPD has provided local communities with collection and recycling services for natural Christmas trees and peach blossom trees since late 2016. With these services, suitable yard waste is treated and converted into compost, bulking agent for composting, mulch for gardening, solid fuel and other recycled products, thereby turning waste into energy and useful products. Certain yard waste is even upcycled into wooden decorations, which serve as gifts for organisations and housing estates that use the services. Through various measures mentioned above, we reduced about 2 000 tonnes of yard waste from disposing of at landfills in 2019.

Problems Needed to be Surmounted

5. Experience from government departments when pressing ahead with the Plan indicates that we need to surmount some problems before we can reduce yard waste disposal further. Yard waste mixing with other waste materials (such as rubbish, plastic bags, metal bars and stones) is difficult to be recycled. However, general works areas lack suitable space to separate, shred, reuse or recycle the generated yard waste on-site. Though some government departments have the necessary facilities to convert suitable yard waste into compost, the process requires a lot of lands and is time-consuming. As a result, composting cannot handle a large amount of yard waste in the context of Hong Kong. Whether the recycled products derived from yard waste have sufficient local outlets and markets is also an important factor. The massive numbers of fallen trees caused by typhoon Mangkhut had brought colossal amount of yard waste and this situation may also happen again in future. These are the factors we need to pay particular attention when finding the best ways to treat the unavoidable portion of yard waste.

Enhancement Measures on Promotion of Reuse and Recycling

6. To further promote the local reuse and recycling of yard waste, the Government has implemented the following enhancement measures. The measures will not only help boost the recovery rate of yard waste in Hong Kong, but also assist devising long-term proposals in handling yard waste in Hong Kong.

Separation and Collection

7. Source separation of other waste materials from yard waste can prevent them from damaging the machines during recycling processes and streamline the recovery procedures. Separating different parts of yard waste for recovery will also facilitate their reuse and recycling. In this regard, the EPD issued the “Guidelines on Handling Yard Waste for Recycling and Disposal” (the Recycling Guidelines) to government departments in September 2019, stipulating that yard waste generated from public works has to be collected and separated on-site. Sorted tree trunks and branches without other waste materials have to be shredded into wood chips to facilitate their reuse or recycling. Yard waste that cannot be treated on-site should be

delivered to EPD's recycling facilities for handling. The Government has started incorporating the above guidelines and requirements, whenever practicable, into the tender/contract documents of suitable public works projects.

Yard Waste Treatment

8. Because of the scarcity of land in Hong Kong to handle a large amount of yard waste, the EPD will use the land near T·PARK in Tuen Mun to develop a Yard Waste Processing Centre (the Centre). Initially, the Centre will receive and handle yard waste arising mainly from government departments and the public works before progressively expanding to cover other local yard waste. The scope of services includes screening, sorting and processing (with treatment methods covering shredding, branch removal, wood-cutting into wood boards and wood beams etc) of the yard waste received to produce different useful materials, such as compost, bulking agent for composting, mulch for gardening and mushroom cultivation materials. Some of the material produced can be reused as raw woods for renovating/decorating facilities or upcycling into other products.

9. A resource centre with guided tour service will be available at the Centre to provide interested members of the public and organisations with educational information about environmental protection, including the collection and handling of yard waste, recycling processes and uses of recycled products etc. The contractor of the Centre will also provide marketing and promotion services to produce recycled products from yard waste and find outlets for the recycled products as well as attracting yard waste producers in the private sector to deliver their yard waste to the Centre in the long run.

10. The EPD is inviting tenders for the Centre. The Centre is expected to be commissioned in early 2021 for four years. The handling capacity of the Centre is about 11 000 tonnes (i.e. an average of 30 tonnes daily) in the first year, and will gradually increase to an annual average of around 22 000 tonnes (i.e. an average of 60 tonnes daily). The Government plans to allocate about \$30 million in the 2020-21 financial year to develop the Centre.

Reuse and Recycling

11. The Government will convert yard waste into different useful materials through the following measures and boost the local demand for the recycled products derived from yard waste.

Compost

12. The Government has engaged a consultant to review and unify the standards on using compost in existing government tender/contract documents, and explore addition or enhancement of the provisions therein to request government contractors taking precedence to use compost derived from yard waste and other organic waste in their vegetation maintenance and public works. Various departments have also been required to stipulate in suitable procurement contracts that the compost purchased must be from processed organic materials or contain recycled organic materials. On the other hand, the Government is studying and testing the other uses of recycled products derived from yard waste, such as bulking agent for composting or mushroom cultivation materials.

Biochar

13. Biochar is a charcoal-like material generated from organic substances including yard waste through a thermal decomposition process conducted under a low oxygen or an anaerobic environment. While decomposition of yard waste will release methane and carbon dioxide, the production process of biochar will sequester solid carbon for a long period of time, turning it into carbon sinks that can be buried underground, thereby mitigating the impacts of climate change. Moreover, the substantial surface area of biochar not only allows the settlement of numerous microbes that promote plant growth, but also enables biochar to be highly adsorptive to water, plant nutrients, harmful pollutants and other materials.

14. With these special characteristics, biochar has extensive potential uses. An example is to serve as soil conditioner to facilitate the growth of microbes that promote plant growth in poor soil, help soil retain water and nutrients while warding off soil pollutants (such as heavy metals and insecticides) that are harmful to plants, and improve the acid-alkali value of soil. Other examples include filtering pollutants in water and speeding up the

degradation of organic waste in anaerobic digestion and composting processes. It can replace some soil used in green roof plantation so as to improve the growth condition of plants and relieve the loading of green roof imposed on buildings. It can also be mixed into animal feed for livestock to improve animal health.

15. Noting these advantages, the Government has commenced a study on developing a pilot plant in the EcoPark in Tuen Mun to convert suitable yard waste into biochar so as to test the different applications for local use. Subject to the outcome of the study, the pilot plant is expected to commence operation in early 2022, with an estimated daily handling capacity of 15 to 20 tonnes of yard waste for the production of some 3 to 5 tonnes of biochar. The EPD has started working with various departments to explore the feasibility of using biochar in their vegetation maintenance and public works, as well as other feasible local uses. In collaboration with the trades concerned, the EPD is examining whether yard waste containing more woody content can be converted into barbecue charcoal for local sale.

Upcycling

16. We understand that there is certain demand from interested parties such as wood artists and landscape architects for wood boards and beams cut out from trees. Therefore, the Centre under planning will sort out suitable thick tree trunks and branches, which will be cut into wood boards or beams and desiccated for storage. They will then be used by government departments and the trades concerned for renovating/decorating buildings and facilities or upcycling into other products.

More Lands for Upcycling and Recycling

17. A lot of land is required for the separation and recovery of yard waste, especially for sorting, screening and horizontal composting processes. As yard waste comprises basically natural resources such as flowers, grasses and trees, their recovery processes (such as composting) are best conducted within greening areas. Therefore, we will explore developing larger scale yard waste recovery bases at restored landfills that are remote, far away from residential areas, absent of convenient transportation and not suitable for the

development of leisure, recreational or sport facilities, so as to upcycle and recycle all the local yard waste in the long term.

Way Forward

18. The EPD will continue to implement various enhancement measures to promote the reuse and recycling of yard waste. Apart from strengthening the collection, separation and recovery of yard waste, we will also expand the local outlets and demand for the recycled materials. In the long run, the EPD will keep cooperating with the DEVB, other government departments and relevant trades to explore the introduction of more diverse proposals to promote the reuse and recycling of yard waste. We will also update the content of the Recycling Guidelines in a timely manner according to the experience gained in implementation of various enhancement measures, so as to provide departments with more comprehensive and effective good practices.

Environment Bureau
Environmental Protection Department
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