

# **Municipal Solid Waste Management Policy Present Situation and Way Forward**

**The Professional Commons**

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## I. Foreword

The public administration of Hong Kong has enjoyed a high reputation in the past. However, the incumbent Administration budes to work on even the “garbage” issue, which is largely an issue significantly with no controversy in modern cities. In recent years, several policy initiatives concerning Municipal Solid Waste (hereafter MSW) have faced serious criticisms and setbacks. Against this background, it is worrying whether the Government of the Hong Kong Special Administrative Region (hereafter the Government) can ensure effective governance over the territory in the long run.

MSW policy measures put forward by the Government in these years, ranging from expansion of the landfills to construction of incinerator, have suffered from lots of backlash. The crux of the issue is that most of these initiatives are by no means optimal, which would result in reduction of country-park size, undertaking of large-scale reclamation, etc. With regards to the consultation on waste charging which is still underway, members of the public in general do not understand its necessity as well as remain skeptical about its practicality.

If taking holistic point of view of the policy into account, the “Policy Framework for the Municipal Solid Waste Management ”(hereinafter referred to as the “Policy Framework”) was released by the Government in 2005, which put in place a set of policy initiatives and respective action agenda up to 2014. Given that the overarching policy framework suggested in this document can serve as a useful reference, The Professional Commons (hereafter The ProCommons) will make use of this framework to assess the effectiveness of existing MSW policy, which serves as the background for in-depth analysis of the proposed waste charging mechanism.

Based on our past experience on public policy analysis and deliberation, the mode of consultation on waste charging is largely a repeat of previous practices, i.e. segregating a complex policy issue and presenting to the public a single faceted one. Hence, many of the responses might be so distorted to address the issue accurately, therefore probably damaging the quality in decision making accordingly. In response to the consultation, The ProCommons has first proposed the future direction of MSW policy from a more macro

perspective, followed by concrete policy recommendations before our response to the proposal of waste charge has been made.

## II. Problem on Municipal Solid Waste Management

### A. Implementation of the “Policy Framework for the Municipal Solid Waste Management”

Three policy targets as well as respective policy measures have been specified in the “Policy Framework” as follows:

| Policy targets                      | Policy measures and facilities                                                                                                                         |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Avoidance and Minimization of waste | Waste charging, Producer Responsibility Schemes                                                                                                        |
| Reuse, recovery and recycling       | Waste charging, Producer Responsibility Schemes, source separation of waste, short-term lease of land for waste recyclers , EcoPark, green procurement |
| Bulk Reduction and Disposal         | Application of mechanical and biological treatment technologies, landfills disposal ban, incinerators                                                  |

#### 1. Imposition of Charges on Municipal Solid Waste

##### Policy measures

Pre-paid waste disposal bags will come in different sizes. The prices of the bags should be set at a rate high enough to recover the cost of treatment and encourage a change in behavior. (Ch. 4, para. 72. Unless specified, the policy measures listed below are from the “Policy Framework”; the same rule applies below)

##### Present Situation

Only in January this year did the Government start to conduct a public consultation over the possible imposition of levies over municipal solid waste.

## **2. Producer Responsibility System**

### **a. Plastic bags**

#### **Policy measures**

Through a Producer Responsibility Scheme (hereafter “PRS”) based charge that will be administered by retailers, the Government aims to drastically cut back the number of bags used. (Ch. 4, para. 73)

Target Date: 2007. (Ch. 4, para. 82, Table 5)

#### **Present Situation**

First phase of the plastic shopping bags levy was implemented in July 2009 that started with chain-stores, in which each hand-carry plastic bag was charged with a levy of 50 cents. It is proposed that the second phase of the plastic bag tax levy will be extended to over 60 000 retail outlets throughout Hong Kong. However, these retail outlets will be allowed to retain the fees and need not turn over the levy to the Government. A three-month public consultation on these proposals had been completed in mid-2011 but no specific timetable for their implementation has been suggested to date.

### **b. Polystyrene lunch boxes**

#### **Policy measures**

In collaboration with green groups, the Government has organized a series of forums at dozens of primary and secondary schools to promote the idea of using fewer disposable lunchboxes. It is hoped that this would help to spread the message of waste reduction to the younger generation and the community. (Ch. 4, para. 73)

#### **Present situation**

As of March 2012, the Environment and Conservation Fund has approved a total of 80 applications for funding, amounting to HK\$100 million that helps

schools retrofit central distribution points for meal distribution, therefore reducing disposable lunch boxes and food waste.<sup>1</sup>

The amount of polystyrene utensils in a midst of municipal solid waste is on a declining trend, reducing from 330 000 tonnes in 2009 to 320 000 tonnes in 2010.<sup>2</sup>

**c. Packaging**

**Policy measures**

PRS levies will be introduced subject to consultation with the trade. (Ch. 4, para. 73)

**Present situation**

The Government is yet to launch the relevant consultation exercise.

**d. Electrical and electronic equipment**

**Policy measures**

A pilot centre has been set up at the Kowloon Bay Transfer Station by 2006 to gain more experience on the PRSs for electrical and electronic equipment. (Ch. 4, para. 76)

Target Date: 2007. (Ch. 4, para. 82, Table 5)

**Present situation**

The public consultation was completed in April 2010. However, the authorities concerned have not yet submitted to the Legislative Council any legislative proposals.

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<sup>1</sup> The Environment and Conservation Fund website,  
<<http://www.ecf.gov.hk/en/approved/ompps.html>>.

<sup>2</sup> Environmental Protection Department, "Monitoring of Solid Waste in Hong Kong," Statistics in 2009 and 2010, "Plate 2.9: Composition of municipal solid waste – Breakdown of major components".

**e. Supply Chain**

**Policy measures**

As Hong Kong is no longer a major manufacturing base, the promotion of PRSs should put more emphasis on the shared responsibility of all parties along the supply chain, from importers and distributors to retailers and consumers. (Ch. 4, para. 81)

**Present situation**

No targeted activities from the Government have been initiated.

**f. Other products**

**Policy measures**

The schedule for implementation of the PRSs on several major types of municipal solid waste is as follows: electrical and electronic equipment, vehicle tyres, and plastic shopping bags by 2007; packaging materials and beverage containers by 2008, and rechargeable batteries by 2009. (Ch. 4, para. 82, Table 5)

**Present situation**

Most of the above-mentioned items, other than electrical and electronic equipment and plastic shopping bags, do not have an action agenda on implementation of the PRSs.

**3. Source Separation of Waste**

**Policy measures**

Setting targets for the domestic waste recovery rate, the participation rate for the overall population, as well as the number of public rental housing estates participating in the programmes. (Ch. 4, para. 88)

### **Present situation**

The Programme on Source Separation of Domestic Waste has been implemented since 2005. As of the end of 2011, there were 1,791 housing estates/ buildings to participate in the domestic waste source separation programme.<sup>3</sup> In October 2007, a similar scheme was extended to commercial and industrial buildings. In August 2011, over 700 buildings have participated in the programme<sup>4</sup>.

Source separation of glass bottles is still at experimental stage although several pilot programmes have been implemented for a couple of years. By the end of 2010, the Glass Container Recycling Programme, which lasted for 12 months, was implemented in six public housing estates in Kowloon East.<sup>5</sup>

## **4. Regional and district-based recycling center / short-term lease of land**

### **Policy measures**

The Government is identifying public spaces dedicated to recycling activities such as idle corners of land below flyovers (Ch. 4, para. 83) and will lease suitable Short-term Tenancy (“STT”) sites exclusively to waste recyclers. (Ch. 4, para. 95).

### **Present situation**

The STT sites granted for waste recovery and recycling purposes have experienced serious contraction in recent years, with the number of corresponding use of land has decreased from 36 in 2007 to 32 in early 2012, and the total area reduced from 7.37 hectares to 4.83 hectares.<sup>6</sup>

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<sup>3</sup> The Government’s domestic waste source separation programme website:  
<[https://www.wastereduction.gov.hk/en/household/source\\_achievements.htm](https://www.wastereduction.gov.hk/en/household/source_achievements.htm)>.

<sup>4</sup> “Source Separation of Waste Programme receives good response”, Press Release of the Hong Kong SAR Government, 17 August, 2011,  
<<http://www.info.gov.hk/gia/general/201108/17/P201108170207.htm>>.

<sup>5</sup> Pilot Programme on Source Separation of Glass Bottles, Environmental Protection Department (EPD) website: <[http://www.epd.gov.hk/epd/english/environmentinhk/waste/eco\\_responsibility/gcrp\\_pilot\\_ssp\\_ha.html](http://www.epd.gov.hk/epd/english/environmentinhk/waste/eco_responsibility/gcrp_pilot_ssp_ha.html)>.

<sup>6</sup> Annex to “LCQ20: Short-term tenancy (STT) sites for recycling industry: Short Term Tenancy Sites for

As for the idea of a recycling center network at the regional or district level, the Government has not put forward any action plans.

The Kwun Tong and Cha Kwo Ling Public Cargo Working Areas were closed at the end of 2011, which is bound to affect the transfer and export of recyclable materials in the vicinity.

## 5. EcoPark

### Policy measures

The Government will establish the EcoPark to provide long-term land for environmental and recycling businesses. Phase I of the EcoPark will be available for occupation by the end of 2006. (Ch. 4, paras. 95)

### Present situation

The repeated delays of full operation of the EcoPark not only have negative impact on development of local recycling industry, but also adversely affect the formulation of recovery system at district level. As the tendering process of land during Phase I had been delayed more than once, all 8 recycling plants could not formally put into operation until the second or third quarter in 2010. Moreover, the leasing rights of six other sites at Phase II of the EcoPark had not been granted until September 2011.

The quantified outputs on waste recovery and recycling amongst the EcoPark tenants have not been made public. From the published account regarding individual tenants, it merely publicized the targeted amount of recycling on a quarterly basis<sup>7</sup>. We are therefore difficult to assess their performance at this stage.

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Waste Recovery/Recycling/Reprocessing Operation (as at June 2007)” Press Release of the Hong Kong SAR Government, July 11, 2007,  
<<http://www.info.gov.hk/gia/general/200707/11/P200707110178.htm>>; “Short Term Tenancy Sites for Waste Recovery / Recycling / Reprocessing Operation (as at January 2012) ,”  
<[https://www.wastereduction.gov.hk/en/workplace/stt\\_sites\\_region.htm](https://www.wastereduction.gov.hk/en/workplace/stt_sites_region.htm)>

<sup>7</sup> “Tenant Close-up”, Website of the Hong Kong EcoPark,  
< <http://www.ecopark.com.hk/en/tenant-close-up.aspx>>.

## **6. Green Procurement**

### **Policy measures**

The Government will adopt a green procurement policy to boost the demand for recycled products (Ch. 4, para. 95)

### **Present situation**

Since 2000, the Government has developed green specifications for products commonly used by government departments, in which it requires all procured products should be in compliance with relevant specifications. The products that comply with the environmental standards in the procurement list have increased to 103 to date. However, the Government has not yet released the proportion of environmentally-friendly products out of the total amount of procurement.

The Government has also committed to promoting green procurement at community level, in which "Hong Kong Green Purchasing Charter" was established on October 2007. However, the effectiveness of the promotion is quite of limited scale. Besides the 11 founding members, the Hong Kong Green Purchasing Charter has only 13 fellow members, 44 ordinary members and 31 Associate Members at present.<sup>8</sup> Total memberships amongst all membership categories are merely 109 in a four and a half years span since its inauguration.

## **7. Landfill disposal bans**

### **Policy measures**

When appropriate technologies such as composting or anaerobic digestion come online, landfill disposal bans will, in the longer term, be extended to cover biodegradable waste, such as food waste (Ch. 4, para. 105).

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<sup>8</sup> See the Hong Kong Green Purchasing Charter website, membership lists, < <http://www.hkgpc.org/html/eng/member.aspx>>.

### **Present situation**

The incumbent Administration is indecisive over the construction of organic waste treatment plants. Hence, it should be beyond any doubt that the proposed ban fails to make any real progress.

## **8. Food waste recycling**

### **Policy measures**

Biodegradable materials such as food waste from commercial and industrial establishments can be separately collected at source for biological treatment such as composting and anaerobic digestion.... Exporting compost to the Mainland is not practicable due to the strict import control on the quality of compost produced from municipal solid waste. Hong Kong is able to take up soil conditioners produced from about 500 tonnes of biodegradable waster per day. (Ch. 4, para. 108)

### **Present situation**

There has been said more than done concerning the organic waste treatment plants in the Siu Ho Wan and Sha Ling. The former is still during the tendering stage, while as for the latter, feasibility studies and environmental impact assessment have not been completed. It is anticipated that the only facilities of the first phase will put into production during the mid-2010s.

## **9. Incinerator / Modern Integrated Waste Management Facilities**

### **Policy measures**

After the various measures on avoidance, recovery and recycling of waste are introduced, the Integrated Waste Management Facilities will be established in two phases. (Ch. 8. para. 112)

### **Present situation**

Recently, the application for the establishment of the Integrated Waste Management Facilities in Shek Kwu Chau was unfortunately turned down by the Food Safety and Environmental Hygiene Panel of the Legislative Council. The funding application to the Legislative Council has then been withdrawn for the time being.

## **10. Summary**

Regarding the implementation of the existing municipal solid waste management policy, it was characterized that the Government failed to take determined actions. It had rather spent time on empty talk, therefore incapable of putting forward even soft options, not to mention possible fulfillment of difficult tasks.

Generally speaking, it is considered that the execution of the three policy targets proposed in the “Policy Framework” are far from satisfactory, in particular on installation of relevant facilities. Below are our summary remarks:

### **a. Avoidance and minimization of waste:**

There is a general impression that the departments concerned are merely keen on waste reduction programmes on a voluntary basis, including various “source separation programmes”. Despite somewhat impressive results in terms of participation of buildings, it is still far from satisfactory that these programmes are yet to reach the level of full community participation. As a crux, only a portion of individual households and businesses have been engaging in voluntary source separation.

Levies on municipal solid waste and producer responsibility systems require forceful administrative and legislative means, as well as involvement of lobbying and campaigning of considerable strength. But it is obvious that the Government failed to pluck up with necessary political determination to put relevant policy measures in place. Therefore, waste reduction is far from satisfactory and there exists considerable room for further improvement.

b. Reuse, recovery and recycling

As for effect, reuse, recovery and recycling are steps that were intimately intertwined. Failure of any single part will adversely affect the other in the chain for sure.

Given that levy on municipal solid waste and most producer responsibility schemes have not been in place, lack of legal and administrative tools plus lack of incentives are regarded as additional factors that obstruct any possible improvement of recovery. It in turn badly affects the “supply” of recyclable materials and no adequate private investment has been injected into the development of recycling industry.

In the face of such adverse business environment, the Government still strictly adheres itself to market-driven policy without provision of significant support to the privately-run recycling industry. As a result, the development of regional recycling centres, EcoPark, food waste treatment plants and green procurement remains stagnant, therefore failing to create synergistic effect for the whole supply chain of the industry.

As an issue that we have attached equal importance, the local recycling industries are far from reaching adequate economies of scale. Under existing circumstance, whether individual materials are successfully recycled is in the constraint of availability of overseas outlets. It results in adversely affecting the healthy development of the industry, therefore establishing no successful virtuous circle for its necessary development.

c. Bulk Reduction and Disposal

Lukewarm attitude of the Government concerning construction of waste treatment facilities makes account of snail-speeded construction of even some lesser controversial facilities as food waste treatment plants and EcoPark, resulting in substantial amount of recyclable materials being disposed at valuable landfills. It is therefore indispensable of the Government to evade any responsibilities.

Another example is the sludge treatment plant project (Note: sludge generated by sewage treatment plants is not considered as domestic waste). The plant is able to take up to 2 000 tonnes of sludge with 30% of which considered solid substances.<sup>9</sup> However, its construction is not up to the original schedule in 2012 and it does not put into operation until the end of 2013.<sup>10</sup> Further, no explanation has been given by the Government on why early construction of the treatment plant was not possible.

## **B. Strategic errors and its consequences**

### **1. Ignoring role of industrial and commercial sectors in waste reduction, reuse and recovering**

To explore the means for realization of the producer responsibility scheme, it should be noted that, as stated in the "Policy Framework", "consumers as decision-makers deciding which products to use must play their part as well" (Ch. 4, para. 79). It is also pointed out that "as Hong Kong is no longer a major manufacturing base, PRSs in Hong Kong will emphasize the shared responsibility of all parties along the supply chain, from importers and distributors to retailers and consumers" (Ch. 4, para.81), suggesting a relatively understanding and sympathetic attitude towards local business sectors. Without a deeper look, it seems that the Government has suggested sharing of responsibilities amongst all parties, but in fact there is no specification on the responsibility of business sectors in waste reduction, reuse and recovering

As indicated by specific policy measures in recent years, majority of clauses concerning the proposed producer responsibility schemes in the "Policy Framework" result in nothing but tissues of empty talk, which has been summarized as follows.

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<sup>9</sup> EPD, "Sludge Treatment Facilities - Project Profile", p.3,  
<<http://www.epd.gov.hk/eia/register/profile/latest/esb169/esb169.pdf>>

<sup>10</sup> <振英棄焚化爐 邱騰華「唱反調」 湯家驊指梁迴避泛民感失望>, *Sing Tao Daily*, 6 March 2012, p. A10.

| Relevant Clauses in the<br>Producer Responsibility Schemes                                                 | Present situation                              |
|------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| Manufacturers are required to bear the responsibility of waste recovery for recycling                      | The consumer to bear the main responsibilities |
| Limiting the free distribution of certain products to reduce consumption                                   | At least six free newspapers on market         |
| A mandatory deposit system to encourage recovery of some categories of products                            | An implementation mainly on a voluntary basis  |
| Levies on some product categories to facilitate the recovery and recycling of waste products               | No such measures introduced                    |
| Restriction of certain ingredients to be used in production to facilitate the recycling of waste materials | No such measures introduced                    |

More importantly, it has been claimed by government officials that the recovery rate of commercial and industrial waste has always been at a higher level, which was 65% in 2009.<sup>11</sup> Against this background, the Government has not been effectively monitoring the growth of commercial and industrial wastes for a certain period of time, not to mention to enhance their recovery rate via introduction of both legislative and administrative means.

Commercial and industrial waste has grown rapidly in recent years, which has become the main source for avalanche of municipal solid waste. From 2002 to 2010, there has been a sharp increase on daily disposal rate, accounting for a 60% increase of a total of 1,500 tonnes or more commercial and industrial waste. Amongst them, commercial waste constitutes three-quarters of such change. On the contrary, domestic waste per day has decreased by nearly 20% with a reduction of around 1,400 tonnes. To further compare the amount of reduction per capita, domestic waste during this period reduced by 0.25 kg per day, but the decrease was offset by the increase in commercial and industrial solid waste accordingly, resulting in an overall reduction of a mere 0.11 kg of municipal solid waste. The details have been shown by the following table:

<sup>11</sup> "LCQ18: The number and locations of 3-coloured waste separation bins," Press Release of the Hong Kong SAR Government, 26 May 2010.

**Table 1: Daily Disposal of Municipal Solid Waste in Landfills**

|                                                        | <b>2002</b> | <b>2010</b> | <b>Range of Increase or Decrease</b> | <b>Percentage Increase or Decrease</b> |
|--------------------------------------------------------|-------------|-------------|--------------------------------------|----------------------------------------|
| <b>Domestic waste (tpd)</b>                            | 7,519       | 6,135       | -1384                                | -18%                                   |
| <b>Commercial waste (tpd)</b>                          | 1342        | 2352        | 1010                                 | +75%                                   |
| <b>Industrial waste (tpd)</b>                          | 561         | 627         | 66                                   | + 12%                                  |
| <b>Commercial and Industrial Waste (tpd)</b>           | 1903        | 2979        | 1076                                 | + 57%                                  |
| <b>Municipal solid waste (tpd)</b>                     | 9422        | 9114        | -308                                 | -3%                                    |
| <b>Domestic waste (kg/person/day)</b>                  | 1.1 1       | 0.8 7       | -0.25                                | -21.62%                                |
| <b>Commercial and industrial waste (kg/person/day)</b> | 0.2 9       | 0.42        | 0.14                                 | 44.83%                                 |
| <b>Municipal solid waste (kg/person/day)</b>           | 1.40        | 120 9       | -0.1 1                               | -7.86%                                 |

Remarks: tpd: tonnes per day

Source: Environmental Protection Department: Monitoring of Solid Waste in Hong Kong (Waste Statistics for 2 006 and 2010). Plate 2.7 Per capita disposal rates of municipal solid waste and domestic waste

## **2. Over-reliance on exports**

The Government openly admits that Hong Kong relies so much on export for effective absorption of local recyclable materials. Taking the year 2010 as an example, recyclable materials collected by local waste recyclers reached approximately 3.6 million tonnes, in which 3.57 million tonnes (about 99%)

were exported with the rest (less than 30 thousands) handled locally.<sup>12</sup> It can be seen that local recycling industry is far from thriving. Without any outlets from overseas market, landfills seem to be the only option for their disposal.

Concerning the constraint, it was highlighted by the Government that “low values, high transportation cost or lack of market demand for recovered materials particularly for plastics, glass, textiles, tyres and organic materials”<sup>13</sup>. The same can be observed from individual recyclable materials. During 2010, daily disposal of glass and wooden/rattan materials amounted to 373 tonnes and 295 tonnes respectively. Owing to the fact that the construction of food waste treatment plant is yet to start, daily disposal of industrial and commercial food waste in landfills has reached a total of 840 tonnes.<sup>14</sup>

It is nothing but a naked violation of the principle of fairness that we pass the buck of burden of recyclable materials to other countries or places with no qualms at all. Even from a practical perspective, such a strategy is also not what we consider as sustainable. Even the Mainland has imposed a rather strict regulation on import of what we called “foreign garbage”. On the other hand, there are also proactive measures that rectify high-polluting industries comprising definitely the recycling industry. In the long run, Hong Kong is not justified to rely on other places to absorb the recyclable waste that we produced.

### **3. Stiff insistence of non-intervention policy**

As a principle, the Government has adamantly adopted an open market approach toward recycling and recovery industries without provision of subsidies and assistances of any form. Owing to a meager profit that can only be made, the industry is under labor-intensive operation with relatively low skills involved. Against this background, it would be difficult for any formation

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<sup>12</sup> EPD, “Monitoring of Solid Waste in Hong Kong,” Statistics in 2010, “Plate 3.2: Municipal solid waste recovery rates in 2009 and 2010, Note 1, p. 12.

<sup>13</sup> Waste Management Policy Division, EPD, “Recovery and Recycling of Municipal Solid Waste in Hong Kong”, November 2011. (環境保護署廢物管理政策組：〈香港都市固體廢物的回收及循環再造〉；Chinese only), Waste Reduction website,

<[https://www.wastereduction.gov.hk/chi/materials/info/wr\\_msw.pdf](https://www.wastereduction.gov.hk/chi/materials/info/wr_msw.pdf)>

<sup>14</sup> Ditto. Plate 2.9: Composition of municipal solid waste in 2010 – Breakdown of major components, p. 9.

of economies of scale that inevitably incurs irregularity in daily operation. Under such adversity of business condition, it would be in vain to ask local recovery and recycling industries to shoulder the social function of effective recycling.

The prominence of non-intervention policy also results in continued procrastination of EcoPark as well as stagnant development of regional or district recycling centres.

It has been observed that government subsidies have long been a contributing factor that helps bring a success of local industrial and trade development. Now the self-proclaimed free but rigid economic policy has done nothing but ignored the positive contribution of recycling industries to the society, which is regarded as a serious flaw that obstructs people from seeing light at the end of tunnel.

#### 4. Ignoring the fact that over half of the waste has no outlets

At present, recyclable materials comprise mainly waste paper, metals, plastics and old clothing, but the Government is yet to explain to the public there has still been substantial amount of waste that cannot be handled by the existing recycling system, including putrescible, glass, wood/rattan, household hazardous wastes (HHWs), etc. They make up of a total of 4 500 tonnes, equivalent to the half amount of all landfill disposal. Details are as follows:

Tonnes

|                    | Household waste | Industrial and commercial waste | Subtotal    |
|--------------------|-----------------|---------------------------------|-------------|
| <b>Putrescible</b> | 2747 (74.9%)    | 922 (25.1%)                     | 3668 (100%) |
| <b>Glass</b>       | 310 (82.9%)     | 63 (16.8%)                      | 374 (100%)  |
| <b>Wood/Rattan</b> | 74 (25.1%)      | 221 (74.9%)                     | 295 (100%)  |
| <b>HHWs</b>        | 75 (69.4%)      | 33 (30.6%)                      | 108 (100%)  |
| <b>Total</b>       | 3206 (72.1%)    | 1239 (27.9%)                    | 4445 (100%) |

Source: Plate 2.8: Composition of municipal solid waste in 2009 – Breakdown of major components, “Monitoring of Solid Waste in Hong Kong: Waste Statistics for 2010”

## 5. Small capacity results in low effectiveness

Several tenants of the EcoPark have commenced operation and their recycling capacities are listed as follows:

| Tenants                                        | Recyclable Materials              | Recycling Capacity |       |
|------------------------------------------------|-----------------------------------|--------------------|-------|
|                                                |                                   | tpq                | tpd   |
| Champway Technology Ltd.                       | Cooking oil                       | 5000               | 54.9  |
| Hong Kong Hung Wai Wooden Board Company        | Wood and timber                   | 12500              | 137.4 |
| Shiu Wing Steel Limited                        | Metal                             | 40000              | 439.6 |
| Li Tong Group                                  | Electronic and computer equipment | 300                | 3.3   |
| Hong Kong Telford Envirotech Group Ltd.        | Plastic                           | 5110               | 56.2  |
| YOT EcoPark Plastic Resources Recycling Centre | Plastic                           | 1560               | 17.1  |
| St. James' Settlement "WEEE GO GREEN" EcoPark  | Home appliances                   | 50                 | 0.5   |
| Cosmos Star Holdings Limited                   | Car batteries                     | 660                | 7.3   |
| Total                                          |                                   | 65180              | 716.3 |

Remarks: tpq: tonnes per quarter; tpd: tonnes per day

Source: "Tenant Close Up", EcoPark website,  
< <http://www.ecopark.com.hk/en/tenant-close-up.aspx>>

In fact, recycling via local means can help reduce transportation expenses and carbon emission. More importantly, unused recyclable materials, simply because of lacking overseas market, will no longer be disposed of in landfills if they can be processed locally. For instance, there was basically no outlet for scrap wood until the establishment of a wooden board company in the EcoPark, which is able to absorb hundreds of tonnes of scrap wood. It is anticipated that the flourishing of local waste recycling and processing industries might further stimulate an extra demand on "raw materials" and therefore boost up the waste recovery.

Glass as another example can serve as a good case to illustrate the interdependence between waste recovery and recycling. According to an official source on glass recovery and recycling, there is no leverage of using glass bottles over mineral materials in terms of cost saving. Given that the economic benefits generated by the recovery and export of glasses are far from significant, the future of this specific type of business looks grim.<sup>15</sup> As there is no major glass recycling industry in the territories, the Environmental Protection Department had openly stated that it would not be advisable to put in place a large scale glass recovery mechanism prior to the existence of stable and reliable outlets for the glasses.<sup>16</sup> Against this background, it should be beyond any doubt that recovery of recyclable waste hinges on the possible expansion of local recycling industry.

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<sup>15</sup> Waste Management Policy Division, EPD, “Waste Glass Bottles in Hong Kong”, Waste Management Policy Division, November 2011, (環境保護署廢物管理政策組：〈香港廢玻璃瓶的回收及循環再造〉2010年11月；Chinese only), Waste Reduction website;

<[https://www.wastereduction.gov.hk/chi/materials/info/wr\\_glass.pdf](https://www.wastereduction.gov.hk/chi/materials/info/wr_glass.pdf)>.

<sup>16</sup> Ditto, June, 2007 version.

### **III. Proposed Guiding Principles**

#### **A. MSW Policy**

1. “Policy Framework” has set out three policy tasks that represent a holistic and comprehensive picture, including (1) avoidance and minimization of waste; (2) reuse, recovery and recycling; and (3) bulk reduction and disposal. In the future, greater emphasis should be put on policy implementation and enforcement.
2. Given that the objective of introducing waste charges is to change behaviour of citizens, it would be more sustainable to instill a sense of self-obligation on waste reduction and recovery across the community.
3. As a matter of principle, the Government should trust our fellow citizens that they are able to develop their sense of environmental protection and are willing to assume the responsibilities on waste reduction and management. In the light of this, a higher priority should be attached to create an environment that is favorable enough to facilitate a community-wide participation on waste reduction, recovery and recycling. Whether these measures would adversely affect people’s livelihood should be considered as of secondary importance, as far as its influence is concerned.
4. The Government should initiate to rebuild public confidence by insistence on environmentally-friendly principles in municipal solid waste management. To this end, concerned government departments should take the lead and should provide sufficient resources on waste reduction and recovery, green procurement, etc. Beside greater effort that supports development of recycling industry, environmentally-friendly waste management facilities other than incinerator should be installed in no time. Such a move will be more appealing to the community on one hand, and will help get rid of any possible public suspicion what underneath the policy is nothing but shifting of necessary burden of government to ordinary citizens.
5. As an issue, municipal solid waste management is what affects people from all walks of life. Only mass mobilization could ensure a success of the policy targets that stress on fair share on responsibilities. In the light of recent upsurge on industrial and commercial waste in recent years, greater effort with forceful

remedial measures should be put in place in response to this imminent situation.

6. Policy measures under the three policy targets should be implemented in a more balanced way to create the necessary synergistic effect that is powerful enough to help bring about better results. For instance, source separation can help reduce the amount of waste; development of recycling industries can boost up waste recovery rate, etc.

#### **B. Waste Charging System**

1. In view of prioritization in policy implementation, waste charging should only be imposed following the full-scale implementation of waste reduction and recovering measures.
2. A reward mechanism should be included so that citizens actively engaging in waste reduction and recovery would not be charged or even be given monetary reward.
3. Waste charging should adhere to the principle of “revenue neutral”. All extra revenue generated should be earmarked for the development of circular economy and recycling industries.
4. Levy on municipal solid waste should be avoided from becoming another goods and services tax. More importantly, drawbacks from regressive tax should also be exempted.

#### **IV. Policy Recommendations**

##### **A. MSW Policy**

1. To rebuild public confidence that the Government is willing to make commitment on municipal solid waste management, it should take the lead and put in place seriously internal measures on waste reduction and recovery, green procurement, etc. Individual bureaux and departments should also be required to make account of their performance on solid waste management by preparing a specific chapter in their writing of annual environmental performance report. Furthermore, the Government as a whole should provide an annual environmental performance report that consolidates and reflects the overall performance of the entire government, particularly on provision of year-on-year comparison and figures on solid waste management for easy reference of the public.
2. To ensure a success concerning the implementation of MSW policies, the Government is advised to launch a community-wide campaign, therefore mobilizing people from all walks of life to actively participate in waste reduction and recovery. It should be highlighted that the mass education campaign aims not only at cultivating toward the public a stronger sense of environmental protection that leads to a lifestyle change only, but also at eliminating mutual disbelief that may come out in the course of policy implementation. More importantly, in order to make members of the public more contributive, this engagement exercise should be undertaken in combination with the visions that constitutes the betterment of our community.
3. The Government should act proactively to put forward forceful policy measures toward avoidance and minimization of waste, particularly via the introduction of producer responsibility schemes that facilitate waste reduction at the source. By doing so, it would help individual citizens get rid of disposal of waste that is totally unnecessary. Under the PRSs, manufacturers, importers, wholesalers, agents all bear their obligation to follow a set of criteria on manufacturing process as well as quality of the imported products including low energy consumption, minimum consumption of materials, non-toxic and low pollution, easy recovery, reduced use of packaging materials, etc. If implemented

successfully, there will be real choices in the market. Those willing to engage in waste reduction and recovery would have a chance to put them into practice on a daily basis, whereas those reluctant to do so might accept waste charging in a more open manner.

4. Utilization of creativity to upgrade waste recovery and recycling
  - a. Putting in place a multi-item recovering mechanism across the territories

This is what the Government can do to reduce transportation cost substantially. Taking restaurants as an example, recycling operators can collect cooking oil, glass bottles, metal cans, food waste and plastic bottles in one go, as long as these items can be under proper separation and storage. By doing so, waste from restaurants and catering industries will be sharply reduced.

Besides 3-coloured waste separation bins, waste reduction programmes on a voluntary basis initiated by the Government focus on single-item recycling (rechargeable batteries, computers, CFLs, fluorescent lamps, glass bottles, etc). But given the limited scope of distribution of collection points plus substantial transportation cost, value generated from recycling materials has been offset.

- b. Procurement of services as a means to compensate the waste recovery and recycling industries.

In the course of extracting recyclable materials from municipal solid waste, businesses engaging in waste recovery and recycling have reduced the amount of waste disposed at the landfills. Therefore, they will be justified to request to the Government a claim that they attempt to cover the cost concerned, while the Government is not able to take the provision of such service for granted. In the light of this, the service payment should not be treated as subsidies of any kind.

- c. Promoting waste recovery with cash return

Generally speaking, recyclable materials have had certain amount of cash value. Recovery and recycling with cash return can provide the participants with positive reinforcement, which likely boosts up the recovery rate. In order to

boost the development of recycling businesses, seed money should be injected to facilitate establishment of more social enterprises that start running their business in related industries.

d. Advanced technology to add value to waste recycling industries

Our research capacity and technological level are amongst all one of the highest in the world. Against this background, it is possible that the recycling and recovery industries can combine R&D and high technology, therefore speeding itself forward to the direction of high-tech development.

- Extracting rare earth minerals from waste electrical and electronic equipment. A feasibility study on opportunities of strategic rare earth materials processing industry in Hong Kong was released by the Federation of Hong Kong Industries and Hong Kong Productivity Council, identifying the potential for Hong Kong to develop a REEEs-based specialty intermediate materials industry in the light of four aspects<sup>17</sup>. On the other hand, valuable metallic substances can be extracted from waste electrical appliances and electronic equipments, in which advanced countries like Japan extract rare metal via recycling of the above-mentioned equipments.<sup>18</sup> In view of local huge production of waste electrical appliances and electronic equipments, it should be advisable for the Government to sponsor the development of related technologies via Innovation and Technology Fund, therefore enhancing the technology level of recycling industries.
- Recycling waste cooking oil into biodiesel is regarded as another high value-added recycling industry.<sup>19</sup>

e. Incorporating the concept of “livable city” into the development of waste recycling

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<sup>17</sup> For details, see “Study by FHKI and HKPC Outlines Opportunities for Hong Kong to Develop Rare Earth Materials Processing Industry,” (Press Releases), Webpage of the Federation of Hong Kong Industries, 13 March 2012,

<[http://www.industryhk.org/english/news/news\\_press/pr\\_120313\\_009.php](http://www.industryhk.org/english/news/news_press/pr_120313_009.php)>.

<sup>18</sup> 〈外國購華稀土廢料 加工提煉〉, Wen Wei Po (online version), 21 June, 2011.

<sup>19</sup> 〈荷航活用地溝油〉, Wen Wei Po (online version), 26 November, 2011.

As stressed, food waste without local outlets for soil conditioners produced has to end up in landfills. The Government is advised to develop outlets in the light of two aspects, including

- Rejuvenating arable land in rural area: At present, there exists idled arable land of considerable scale. In view of voices that express emerging desire to participate in farming at societal level, availability of big area of arable land is not impossible, if the Government initiates to work closely with the landlords concerned. As far as the advantages are concerned, this strategy will help reduce production of waste on the one hand, and will enhance a more vibrant city life on the other. More importantly, it can take up more soil conditioners produced from biodegradable waste;
  - Promotion of rooftop garden: rooftop gardening as a programme would be conducive to reducing carbon footprints as well as taking up more soil conditioners produced from biodegradable waste. Specific strategies are suggested as follows:
    - To introduce extensive rooftop gardening in public buildings and utilities, in which tall buildings may adopt a more economical extensive design, while shorter one the intensive design in order to reach as many eyeballs of inhabitants as possible;
    - Owners of private buildings should be encouraged to follow through the promotion of corporate social responsibility and the provision of matching fund.
5. Expedite the construction of waste treatment plants with incinerator as last resort
- a. To construct another EcoPark of similar scale in the East of New Territories. It would be crucial to establish recycling plants with strategic value. Together with possible absorption of waste glass and wood with no outlets in overseas market, recycled paper can also be one of the main products that come out to take up the handsome local market share.
- b. In order to effectively take up daily production of industrial and commercial food waste totaling 900 tonnes, the construction of the two organic waste

treatment plants in Siu Ho Wan and Sai Ling should beyond any doubt commence as soon as possible, while the third one should be completed by 2020 as scheduled.

- c. Despite the fact that the installation of incinerators with state-of-art technology represents a more environmental-friendly choice, the effect is still far from satisfactory when compared with recycling and recovery of extensive scale. From cost effective perspective, the policy option is still inferior to waste charging. In the light of this, the installation of incinerators is what should consider the last policy option.

Comparison according to cost benefit analysis: between waste charging and incinerators

|                                                                       | Incinerator<br>(From 2016 onward) | Waste Charging<br>(From 2015 onward) |
|-----------------------------------------------------------------------|-----------------------------------|--------------------------------------|
| Capital Investment (in billion HK\$)                                  | 15                                | 1                                    |
| Annual Net Expenditure (in billion HK\$)                              | 3.5                               | 0.05                                 |
| Daily Reduction of Landfill Disposal (in tonnes)                      | 2700                              | 2700                                 |
| Total reduction of Landfill Disposal until 2022 (in thousand tonnes)  | 690                               | 788                                  |
| Cost to be saved in landfill disposal until 2022 (in thousand tonnes) | 44                                | 50                                   |
| Net expenditure/revenue until 2022 (in thousand tonnes)               | -351                              | +36                                  |

Remarks:

- Incinerator is expected to put into production in 2016. Treatment capacity is expected to be 3 000 tonnes per day with volume compression ratio at 90%. Residues will be sent to landfills for disposal.
- Waste charging mechanism can put into practice in 2015. It was suggested by experience from Taiwan that the mechanism could lead to 30% reduction of waste, which is equivalent to an amount of 2,700 tonnes. The amount does not take the assumption of upward trend of waste reduction rates into account.

- It is anticipated that the teething cost of the proposed waste charging mechanism will be HK\$1 billion. No matter the amount to be levied, it will all be contributed to the cash rebate to citizens or sponsorship to recycling and recovery industries. Therefore, there will be no net surplus or deficit involved.
- Assuming that the disposal cost per tonne is constant and maintains at the level of HK\$630. The amount does not take relevant waste transportation cost into account.

## **B. Waste Charging System**

1. A partial charging mechanism should first be introduced on industrial and commercial waste as it appears to be an effective way in reducing their growth substantially.
2. There should be no way at all that levies on municipal solid waste have become goods and services tax of any sort. Notwithstanding inexorable increase in household expenditure, remedial measures should be in place to avoid the emergence of any blow that adversely affects the standard of living of low-income groups. Two policy measures have been suggested for consideration:
  - a. Similar to the existing policy measure that reduces water and sewage charges, each household should be provided with a garbage bag of a designated volume with no charges involved. Any excessive disposal will be required to pay for extra garbage bags. Such an arrangement can serve as a supplement to the quantity-based system; or
  - b. To dispense each citizens/household a special allowance for procurement of garbage bags every year. Such a move would be regarded as an incentive toward voluntary waste reduction, as the amount saved from using less garbage bags can be at a disposal of citizens concerned to other purposes.