WORLD GREEN ORGANISATION
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TO:
Council for Sustainable Development

WGO's response to the "Waste Reduction by Waste Charging How to Implement" document

1. Summary

a) The active discussion in our community over the extension of landfills and related issues has served as a reminder of the imminent waste problem our city faces. Hong Kong must implement a sustainable and multi-pronged waste management strategy with the following key elements: waste avoidance, recycling, incineration and landfill.

b) World Green Organisation(WGO) believes that the most cost-effective way to tackle the waste issue is reducing waste at source and promoting waste recycling. More importantly, putting more effort in reducing waste at source contributes to the whole society, especially help reduce the cost for having new end-of-pipe treatments. According to the experience in Singapore, the lifespan of landfill is significantly increased with good improvement in recycling rate.

c) Hong Kong's waste recovery rate currently stands at 52%, a decent level compared to many other cities in the world. But our per capita waste generation and disposal figures are still on the high side. Hong Kong currently disposes about 9,000 tonnes of Municipal Solid Waste (MSW) each day, increasing the burden of the city's landfills. It is estimated that the three strategic landfills will reach their respective capacities by 2015, 2017 and 2019, so it is clear that the sole use of landfills to handle waste is not sustainable.

d) Given Hong Kong needs to adopt a sustainable waste management strategy, WGO supports waste charging. More importantly, WGO is delighted to know that the public think the same way. According to a public opinion survey

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commissioned by WGO, near half of the public show support to waste charging, whereas only 20.6% of respondents oppose the scheme.

e) To facilitate the implementation of waste charging in Hong Kong, WGO suggests the government run a trial scheme to test different charging mechanisms for households. The government should also conduct more public engagement activities in public housing estates, where half of the households tend to disagree with the waste charging scheme.

2. Charging Mechanism for household

a) To understand the perception of the public on the charging mechanism, WGO commissioned the Statistical Consulting Unit of the Department of Management Sciences of City University Hong Kong to conduct a public opinion survey[1] in mid-September 2013.

b) Regarding the options of waste charging, 64.7% of respondents support the mechanism of household by volume. About 10% of respondents prefer the other two mechanisms respectively, including building by weight and building by volume.

c) Respondents of the survey are invited to comment on the 3 proposed charging mechanisms using two key criteria: Effectiveness in waste reduction and fairness. The results are as follows:

Table 1: Public perception on the waste charging mechanisms(Fairness)

	Building by Volume	Building by Weight	Household by Volume
Fair	23.4%	24.9%	***65.3%***
Neutral	26.7%	27.3%	17.9%
Unfair	44%	41.7%	11.0%
Don't know	6%	6.2%	5.8%
Total	100%	100%	100%

Source: World Green Organisation 2013

[1] Date of survey: 12, Sept 2013 to 20, Sept, 2013. Survey method: Telephone survey conducted by telephone interviewers. Sample Size: 1,005 HK citizen aged 18 or above. Sampling method: Random sampling. Effective response rate: 70%. Standard sampling error: At 95% confidence level, the maximum sampling error of all percentages should be no more than +/-3.2%

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Table 2: Public perception on the waste charging mechanisms(Effectiveness)

	Building by Volume	Building by Weight	Household by Volume
Effective	36.2%	35.3%	***64.0%***
Neutral	26.1%	27.5%	17.1%
Not effective	32%	30.4%	12.5%
Don't know	5.8%	6.9%	6.3%
Total	100%	100%	100%

Source: World Green Organisation 2013

d) From Table 1 and Table 2, it is obvious that the "Household by Volume" charging mechanism is fairer and more effective in reducing waste, which is the most significant reason for implementing waste charging, than the other two mechanisms from the public's perception.

e) WGO suggests **the government should adopt the household by volume option** when consider implementing the waste charging scheme. According to the survey result, the household by volume option receives solid support from the public, as it is fairer and more effective in reducing waste. It would be easier for the government to implement the waste charging by choosing the option with the majority of people support.

f) Over 90% percent of the city's households are served by property management companies. The remaining – many of them single or tenement buildings in old districts- might have to employ other means to pay for the waste they dump. With regard to buildings or premises without property management companies, it is acceptable to ask the households living in the premises to bring their garbage to nearby designated places every time for disposal, within a prescribed period of time.

g) One of the key challenges for adopting household by volume option is feasibility, especially from the perspective of property management companies(PMCs). Having had the discussion with PMCs, WGO understands that the primary concern of PMCs is the enforcement of the scheme, especially their roles in dealing with households who refuse to use the designed bags to dispose their waste.

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3. Analysis on the association between demographic characteristics and degree of support towards waste charging

a) WGO and City University of Hong Kong conducted a cross tabulation analysis on the waste charging survey, the results are as follows:

Table 3. Mean, SD, and distribution of the degree of confidence classified based on the attitudinal and demographic characteristics (n = 1192)

Variable	Coded values	Count n	Degree of support towards waste fee			Test result
			Oppose	Neutral	Support	
Gender (n=945)	1 = Male	363	73 (20.1%)	89 (24.5%)	201 (55.4%)	χ^2 =3.3(NS)
	0 = Female	582	130 (22.3%)	165 (28.4%)	287 (49.3%)	p=0.1895
Area (n=925)	1 = Tuen Mun	55	12 (21.8%)	14 (25.5%)	29 (52.7%)	χ^2 =13.0(NS)
	2 = North	83	22 (26.5%)	30 (36.1%)	31 (37.4%)	p=0.1109
	3 = Sai Kung	38	5 (13.2%)	11 (29.0%)	22 (57.9%)	
	4 = Islands	19	7 (36.8%)	6 (31.6%)	6 (31.6%)	
	5 = Other area	730	150 (20.6%)	191 (26.2%)	389 (53.3%)	
Education (n=926)	1 = Primary or below	178	56 (31.5%)	49 (27.5%)	73 (41.0%)	χ^2 =21.6***
	2 = Secondary	460	97 (21.1%)	128 (27.8%)	235 (51.1%)	p=0.0002
	3 = Tertiary or above	288	45 (15.6%)	70 (24.3%)	173 (60.1%)	
Age (n=933)	1 = 18-34	197	34 (17.3%)	53 (26.9%)	110 (55.8%)	χ^2 =18.4***
	2 = 35-54	415	74 (17.8%)	128 (30.8%)	213 (51.3%)	p=0.0010
	3 = 55 or above	321	92 (28.7%)	70 (21.8%)	159 (49.5%)	
House size (n=926)	1	76	25 (32.9%)	19 (25.0%)	32 (42.1%)	χ^2 =19.2**
	2	173	41 (23.7%)	35 (20.2%)	97 (56.1%)	p=0.0381
	3	227	45 (19.8%)	67 (29.5%)	115 (50.7%)	
	4	287	54 (18.8%)	91 (31.7%)	142 (49.5%)	
	5	119	27 (22.7%)	28 (23.5%)	64 (53.8%)	
	6 or above	44	8 (18.2%)	7 (15.9%)	29 (65.9%)	
House type (n=899)	1 = Public housing	352	89 (25.3%)	105 (29.8%)	158 (44.9%)	χ^2 =12.13**
	2 = HOS	153	26 (17.0%)	40 (26.1%)	87 (56.9%)	p=0.0164
	3 = Private housing	394	80 (20.3%)	93 (23.6%)	221 (56.1%)	
Income (HK$) (n=865)	1 = below 10K	420	110 (26.2%)	101 (24.1%)	209 (49.8%)	χ^2 =14.8**
	2 = 10K-below 20K	253	53 (21.0%)	78 (30.8%)	122 (48.2%)	p=0.0216
	3 = 20K-below 30K	103	15 (14.6%)	25 (24.3%)	63 (61.2%)	
	4 = 30K or above	89	14 (15.7%)	21 (23.6%)	54 (60.7%)	

Notes:
1. χ^2 = chi-square test. Respondents living in temporary or non-residential housing are excluded for the variable 'House type'. The levels of the variables for house size and income are recoded in order that the percentage of cells having expected frequency less than five does not invalidate the chi-square test results.
2. ***, **, and * denote the significance levels for 1%, 5%, and 10%, respectively.

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b) According to the table above, education level, age, house size, house type and income are significantly related to the degree of support to waste charging while living area and gender are not related.

c) WGO can conclude that the public with the following characteristics are more likely to support waste charging: younger population, higher education level, more family members, and higher monthly income. Also, the public living in private housing estates are more likely to support waste charging.

d) It is also worth noting that the elder population, lower education level, one person family, living in public housing estates are less likely to support waste charging.

e) Given the survey results, WGO recommends the government to strengthen the support from the grassroots by organising more exhibitions and seminars in public housing estates with the support from community groups and green groups. By means of face-to-face communication, the government may better explain the reasons why Hong Kong needs to implement waste charging. More importantly, the government can also take the opportunity to deliver important messages about waste charging, such as the families who generate less waste could pay fewer and Hong Kong also needs to use a multi-pronged approach in waste management.

f) The government may also run waste charging trial schemes in public housing estates. It is believed that some successful cases in waste charging in public housing estates could help facilitate the large-scale implementation of the scheme. The government may also invite the representatives from the housing estates where trial schemes have taken place to share their experience with other public housing estates. The experience in implementing waste charging, especially how to tackle the difficulties brought by the scheme, would be of great value to other housing estates.

4. Coverage of Charging Scheme

a) On the principle of shared responsibility, WGO supports a waste charging system for all sectors, including Domestic, Commercial and Industrial sectors. Moreover, this will avoid potential challenges associated with unfairness due to time differences during implementation of different systems for different sectors.

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b) While WGO appreciates that a charging system for domestic waste may be more complicated than that for commercial and industrial (C&I) waste, it should not be seen as a reason for further delaying the introduction of a quantity-based charging system for all MSW. Under all circumstances, it will require the government to take a holistic approach towards the preparation of a comprehensive and integrated system for all sectors, and is the key towards successful MSW charging under the current proposal.

5. **Charging Level**

a) World Green Organization's survey aforesaid shows that 59.1% of 1,005 people aged 18 and above, are willing to pay HK$30 a month while 24.6 percent incline to pay HK$50.

b) Given the success stories of Taiwan and South Korea, where a waste reduction rate of more than 60 percent and 40 percent has been demonstrated since a respective waste levy was introduced, there is no reason for hesitation. In fact, mainstream public opinion decreed that a levy is necessary to achieve the best results.

c) Additionally, a public consultation by the Environmental Protection Department last year revealed more than 60 percent believed waste charging was the inevitable way forward. The tide of public opinion is turning towards a "pay-as-you-throw" policy. Indeed, the proposed levy from HK$30 to HK$74 per month is fairly reasonable and affordable even to low-income earners who can be given waivers.

d) MSW is a major policy that would impact on a wide cross-section of the society and the way MSW is collected. The very nature of the initiative to involve charging could give rise to concerns over the potential cost burden on households and businesses. It could also give rise to concerns over possible regressive effects on low-income households. An important principle is that such charging should not bear a revenue-generating objective.

e) When consulting WGO's cross-table analysis it shows that households having a low level of education and generating a monthly income below HKD $20,000 have a tendency to be less likely to support the waste charging scheme.

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f) Therefore, WGO believes that the government needs to engage the community and relevant stakeholders to explore practicable solutions and come to the aid of the low-income groups in order to implement the waste charging scheme successfully. WGO suggests that the government can conduct a research with an aim to collect baseline information of the low income families in waste management, including the amount of waste generated by the families. Then, the government can suggest providing a certain amount of allowance for the families to help ease their financial burden without sacrificing the incentive for reducing waste.

6. Recycling

a) To understand more how recycling works, World Green Organisation has partnered with local community groups to implement the Tseung Kwan O Residential Waste Reduction & Food Waste Management Pilot Scheme to encourage households to reduce waste. After joining the program, participating households said they could reduce their waste dumped into the landfills by 25 percent to 50 percent.

b) The scheme, which lasts for 90 days, aims to promote a food waste recycling culture in the area by providing recycling services to 200 participating households. With proper processing, food waste can be made into fish food – a creative solution to the imminent waste management dilemma in Hong Kong. According to the figures provided by the food waste recycling consultant, around 17 tonnes of food waste was recycled through the scheme.

c) Recycling is one of the important parts of the waste charging scheme. With more recycling services available for the public, it would be easier for the government to obtain support from the public. Indeed, one of the reasons the public support the scheme is that waste charging can encourage the public to participate in recycling, as our waste survey shows.

d) WGO suggests the government to speed up the process of setting up community recycling centers in the 18 districts, which can engage the public in waste recycling. The ideal timing for the setting up of the centers would be 2016, when the waste charging scheme is expected to come into effect.

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e) WGO agrees that additional resources are needed to support recycling facilities. Revenue yielded from waste charging should be spent on supporting recycling facilities or activities.

7. Foreign experience

Taipei City

a) Taipei City is one of those cities that have adopted a Quantity-based System where a per-bag MSW charging scheme has been implemented since 2000. Their MSW charging system is premised upon the "Keep Trash off the Ground Policy", which features the following key requirements:

- MSW generated from households and small commercial establishments has to be handed over to the municipal waste collection fleet in designed garbage bags at designated times and venues.

- In multi-storey buildings, the waste generated by households in the same building has to be bundled together and put into large designated bags by cleansing service operators for collection by the municipal service at designated times and venues.

b) In Taipei City, coupled with other measures, the implementation of quantity-based MSW charging has resulted in a decline in domestic waste generation from 1.10 kg per person per day in 1999 to 0.88 kg in 2009; domestic waste disposal has dropped from 1.08 kg per person per day to 0.41 kg in the same period. A similar charging system has been implemented in South Korea (including Seoul) since 1995. Waste reduction of a similar magnitude was also achieved in Seoul.

Singapore

a) The recycling rate in Singapore increased from 40% in 2000 to 54% in 2007. The reason contributing to this significant improvement was the National Recycling Programmed launched by the National Environment Agency (NEA) in 2001. According to the research[2], recycling bins were widely placed at

[2] Dongqing Zhang, Tan Soon Keat, Richard M.Gersberg.,2009 A Comparison of municipal solid waste management in Berlin and Singapore, Waste Management 30 (2010) 921-933.

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different area in the country. The government established two recycling parks to provide recycling facilities with low cost rental. Moreover, NEA set up several recycling facilities converting construction and demolition waste into non-structural concrete products. All these measures played a vital role in the improvement of recycling rate.

b) The results of the improvement in recycling rate has reduced the need for additional incinerator and increased the lifespan of landfill. The need for additional incinerator has been reduced from one in every 5 - 7 years to one in every 7 - 10 years. The lifespan of the Semakau Landfill, an offshore landfill in Singapore, has increased from 20 - 30 years to 35 - 45 years.

8. Conclusions

a) As waste management is an imminent issue Hong Kong needs to tackle, the whole society should allow no procrastination to take a multi-pronged strategy to deal with the issue. WGO is delighted to see that the HKSAR government and SDC have made progress on the issue, with the launch of the "Hong Kong Blueprint for Sustainable Use of Resources 2013-2022" in May 2013 and the Invitation for Response Document for waste charging in September 2013. WGO expects the government will formulate an implementation plan as soon as possible after collecting and analyzing the views made by the public on this issue.

b) In the meantime, WGO believes it is the right time for the government to start some pilot projects aiming at implementing different waste charging mechanisms. The government can identify the main barriers of different mechanism and design the best solution for Hong Kong.

End

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Encl. Questionnaire and the result of the WGO's public opinion survey on waste charging scheme