

# CONSULTATION DOCUMENT

Safe and Sustainable:

## A New Producer Responsibility Scheme for Waste Electrical & Electronic Equipment



**Waste Electrical & Electronic Equipment Needs Proper  
Treatment Share Your Views, Protect the Environment**

# Consultation Document

A New Producer Responsibility Scheme for

## Waste Electrical and Electronic Equipment

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The background features three large, light green geometric shapes. One is a triangle pointing downwards in the top right. Another is a larger triangle pointing upwards on the left side. The third is a rounded rectangle at the bottom. The text is centered within the upward-pointing triangle.

## **Safe and Sustainable:**

**A New Producer Responsibility Scheme for  
Waste Electrical and Electronic Equipment**

# FOREWORD

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As an affluent and developed society, Hong Kong has a robust demand for consumer electrical and electronic equipment, such as televisions, refrigerators, washing machines, air conditioners and a wide variety of computer products. Yet these items all contain hazardous substances which should be properly treated at the end of their useful life.

Most of us own such items, therefore we each have a responsibility to ensure the proper management of waste electrical and electronic equipment. To this end, the Government's Policy Framework for the Management of Municipal Solid Waste in Hong Kong (2005-2014) outlines initiatives for enshrining the "polluter pays" principle and producer responsibility in the management of all types of waste. In 2008, the Product Eco-responsibility Ordinance was enacted, providing the necessary legal framework for the introduction of producer responsibility schemes to minimize the environmental impact of various types of products. We are now in a position to engage the public in taking forward an improved system for managing waste electrical and electronic equipment.

Please consider our proposals as contained in this Consultation Document and let us know your views.

**Edward Yau**  
Secretary for the Environment  
18 January 2010



## Chapter 1 - Why WEEE is Harmful

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- 1.1 WEEE stands for Waste Electrical and Electronic Equipment and it generally refers to any discarded, surplus, obsolete or broken electrical or electronic device that is designed for and dependent on electric currents or electromagnetic fields in order to work properly or is designed for the generation, transfer and measurement of electrical currents or magnetic fields. Examples include household appliances, IT and telecommunications equipment, consumer equipment, lighting equipment and the like.

### WEEE: An International Concern

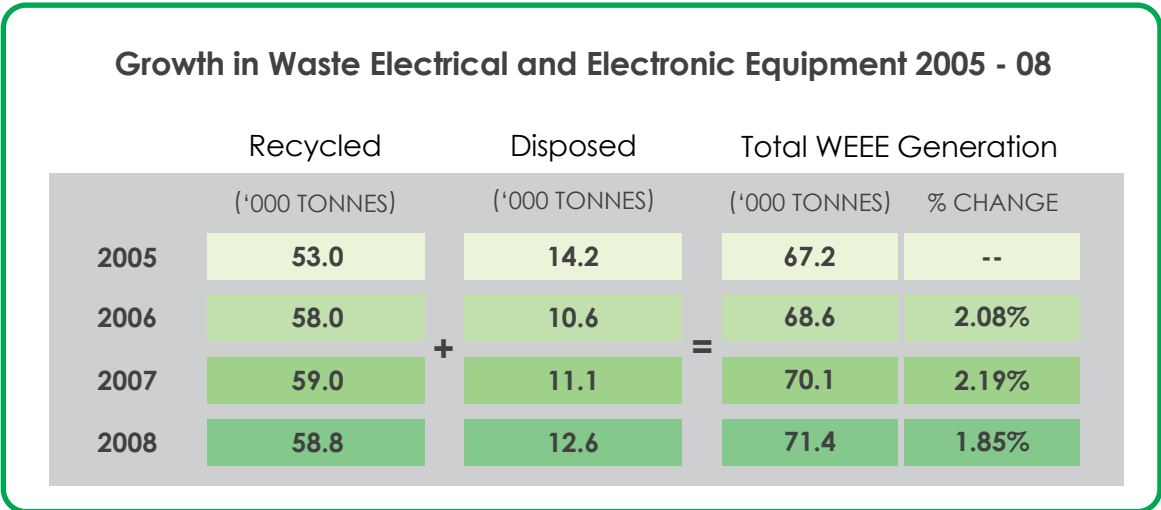
- 1.2 WEEE has become a growing concern internationally because it contains hazardous components that are harmful to the environment and human health if not properly treated or disposed of. For instance, lead and mercury, which are usually found in electrical appliances and computers, may cause cognitive deficits in children, and damage the kidneys, liver and the neural, circulatory and reproductive systems. In addition, some WEEE contains chlorofluorocarbons and hydrochlorofluorocarbons, which destroy the ozone layer and contribute to global climate change. More details are available at Annex A.
- 1.3 In Europe, member states of the European Union have progressively introduced legislation to implement the European Community Directive 2002/96/EC which regulates the handling of WEEE. In the Asia Pacific region, mandatory schemes to manage WEEE have been implemented in Japan, South Korea and Taiwan. Mainland China also passed legislation recently to enable mandatory WEEE control with effect from 1 January 2011.

# WEEE in Hong Kong

1.4 WEEE is also emerging as a challenge for Hong Kong. Bearing in mind the hazardous nature of such waste as mentioned in Paragraph 1.2, we face the following problems:

- (a) **The volume of WEEE that we generate is on the increase**, at a rate of about 2% per year in the past few years (see Figure 1). Given the emergence of more affordable products and improved technology (such as netbooks and high definition televisions), this growing trend is expected to continue and could even accelerate.

Figure 1



Waste electrical and electronic equipment has increased in volume at a steady rate of about 2% annually over the past few years. On average about 80% of the waste is recycled and the remaining 20% goes to the landfills.

- (b) **The current exporting strategy is not environmentally sound and is indeed unsustainable.** At present, about 80% of WEEE generated in Hong Kong is recycled and the majority of it is sold through second-hand dealers, usually to developing countries, for re-use and recovery of useful materials. The temporary storage of this WEEE pending shipment has caused environmental hazards in Hong Kong (see Figure 2). In time, demand for second-hand products in developing countries is expected to decline as the living standard improves and awareness of sustainability develops. Controls on importing WEEE may also be tightened. There is thus increasing pressure for Hong Kong to develop self-sufficiency in managing WEEE.



**Figure 2**



About 100 temporary open storage areas have been set up in the rural New Territories to store WEEE pending shipment overseas. Many sites do not have proper shelter and are not paved. Exposure to the elements can result in land contamination from the leaching of heavy metals, fire hazards, eyesores and other problems.

- (c) **Landfill disposal within our territory is not a solution.** About 20% of WEEE currently ends up in our three strategic landfills, which are about to reach capacity. In any event, even with the development of new landfill resources, it remains pertinent that we make the best use of such resources through a stronger system of reuse, recycling and recovery.

## Chapter 2 - Producer Responsibility: A More Sustainable Approach

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- 2.1 Producer responsibility is a strategy to engage stakeholders in sharing responsibility (financial and/or physical) for the treatment or disposal of end-of-life products, so as to minimize the environmental impact. Such stakeholders include manufacturers, importers, brand agents, distributors, retailers and consumers of the relevant products.

### Overseas Experience

- 2.2 As mentioned in Paragraph 1.3, various jurisdictions across the globe have put in place specific measures for the management of WEEE. The mainstream approach has been to bring WEEE under mandatory control through producer responsibility schemes (hereinafter referred to as “WEEE Schemes”). As examples of this approach, at Annex B we have summarized the key features of schemes in the Netherlands, the province of Alberta in Canada, Japan and Taiwan.

- 2.3 That said, we are also aware that features of these producer responsibility schemes vary from one jurisdiction to another. In general, they differ in three major aspects:

- (a) **Coverage:** The European Union mandates its member states to include a broad class of electrical and electronic products<sup>1</sup> in their WEEE Schemes. But many other jurisdictions focus primarily on bulky household appliances such as televisions, refrigerators, washing machines and air conditioners, and computer products such as desktops, laptops, printers, scanners and monitors.

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<sup>1</sup> These include (i) large household appliances; (ii) small household appliances; (iii) IT and telecommunications equipment; (iv) consumer equipment; (v) lighting equipment; (vi) electrical and electronic tools; (vii) toys, leisure and sports equipment; (viii) medical devices; (ix) monitoring and control instruments; and (x) automatic dispensers.



- (b) **WEEE collection:** Most schemes mandate retailers to offer a “take-back” programme in which they take back WEEE that consumers bring to their stores. Usually this requirement applies when new equipment is sold (as is the case in, for example, Japan, South Korea, Denmark, Finland and the Netherlands). However, in some countries retailers have to take back equipment regardless of whether there is a sale (for example, in Norway, Switzerland and Belgium). Apart from retailer programmes, some places allow take-back to be arranged through not-for-profit companies that are typically run by trade associations or manufacturers (these setups are commonly known as producer responsibility organizations, or PROs), or via municipal collection. Consumers in Japan, Taiwan, Switzerland and Sweden are legally required to return their WEEE to retailers or other outlets.
- (c) **Cost-recovery mechanism:** All producer responsibility schemes are supposed to run on a self-financing basis through some form of fee or charge. Depending on the mode of operation, the monies thus raised may be managed by a commercial but not-for-profit PRO, a semi-official statutory body or by the government directly. Charging methods vary depending on who pays, when they pay, and how they pay, and the more common methods include:
- (i) a visible, separate fee paid by consumers when they purchase new equipment;
  - (ii) an invisible, “inclusive” fee incorporated into the retail price;
  - (iii) an end-of-life fee, which requires consumers to purchase a sticker at the time of disposal of end-of-life products.

## **Present Position in Hong Kong**

- 2.4 In December 2005, the Government published “A Policy Framework for the Management of Municipal Solid Waste (2005-2014)”, setting out its strategy to tackle the imminent waste problem. Among other things, the Policy Framework introduces producer responsibility schemes as a key policy tool for waste reduction, recovery and recycling.
- 2.5 Currently, Hong Kong relies on voluntary measures to approach the emerging problem of WEEE. These include two pilot recycling programmes for computers and electrical equipment operated by Caritas and St. James Settlement, that are funded by the Government and commenced in 2003. Under these programmes, any equipment that can be refurbished is donated to the needy or put up for charitable sale; anything beyond repair is properly dismantled to recover useful parts and materials. Plastics and metals are sent overseas for reuse as raw materials, while cathode ray tubes are dismantled at a recycling centre in Kowloon Bay. Along similar lines, a voluntary trade-based Computer Recycling Programme was launched with the support of some 20 computer equipment manufacturers and suppliers in January 2008.
- 2.6 These voluntary initiatives have run smoothly and achieved some success. The pilot programmes run by Caritas and St. James processed 60,000 units of computers and electrical household appliances in 2008, while the Computer Recycling Programme collected 24,000 units of computer products in its first year of implementation. Notwithstanding this initial success, the existing programmes in their current form are insufficient to cater to the growing quantities of WEEE. For example, although the two programmes jointly collect close to 90,000 items a year, that accounts for only about 1% of the WEEE that Hong Kong generates annually.

## Chapter 3 - We Need to Act

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- 3.1 The existing voluntary measures for the treatment of WEEE in Hong Kong, as mentioned in Paragraphs 2.5 and 2.6, are inadequate to cater for the challenges ahead. It is also infeasible to extend these measures to cover all of Hong Kong because the existing operators are charitable organizations and traders and waste management is not one of their organizational objectives.

### Our Next Step

- 3.2 In line with international experience, Hong Kong is moving towards a mandatory approach for WEEE management. For this purpose, the Legislative Council enacted the Product Eco-responsibility Ordinance (Cap 603) in July 2008 to provide a legal framework for implementing mandatory producer responsibility schemes for various products including electrical and electronic equipment. An environmental levy has already been introduced for plastic shopping bags and, in his 2009-10 Policy Address, the Chief Executive identified WEEE as the next target for a producer responsibility scheme. We believe that by putting in place a proper scheme for WEEE in Hong Kong, we could:

- (a) foster the reuse and recycling of products or parts thereof, thus promoting more efficient use of resources;
- (b) minimize the impacts that WEEE might bring about for the environment and the health of those who have to handle such waste;
- (c) cope with the increasing volume of WEEE without creating additional pressure on our already-stretched landfill facilities;
- (d) better align with the “polluter pays” principle in financing the management of WEEE;
- (e) keep pace with developments in the international community and in particular the neighbouring region in the management of WEEE; and
- (f) promote the development of the environmental industry in Hong Kong as one of our key economic areas.

## The Consultation Document

- 3.3 As provided for under Section 2(1) of the Product Eco-responsibility Ordinance, producer responsibility schemes should be based on the “polluter pays” principle. We also aim to have a WEEE Scheme that:
- (a) suitably engages manufacturers, importers, wholesalers, retailers, consumers and any other relevant parties;
  - (b) covers “historical” products (i.e. affected products that are purchased before the WEEE Scheme commences);
  - (c) is enforceable, sustainable, and cost effective;
  - (d) builds on existing strengths, in particular private collection channels for WEEE which have been proven to be efficient; and
  - (e) promotes local recycling and encourages reuse and refurbishment.
- 3.4 The purpose of this Consultation Document is to present our analysis of the options for a WEEE Scheme for Hong Kong, giving due regard to relevant international experience as well as our local context. Through such analysis, we have drawn up a set of proposals and now seek the public’s views before taking the matter forward.

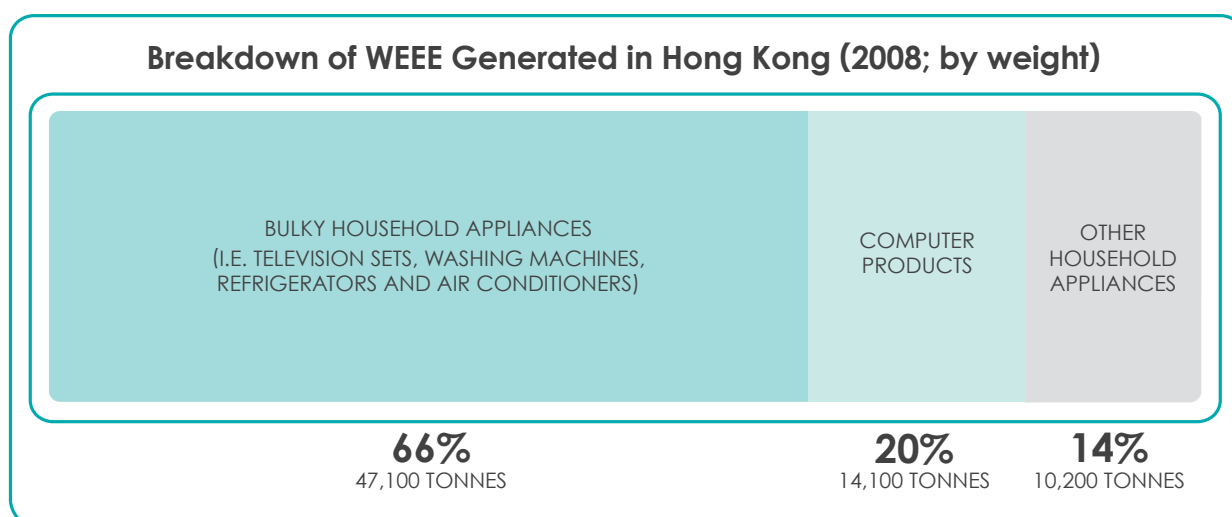
### Chapter 4 - Targets of the Scheme

- 4.1 Since many everyday devices contain electrical or electronic components, a general definition of WEEE could cover a very wide range of products (cf. Paragraph 1.1). Internationally, the general practice has been to focus on waste generated from specific products. Other jurisdictions have also set collection and recycling targets to facilitate planning and effectiveness evaluation.

#### Coverage

- 4.2 In Hong Kong, 86% of all WEEE (see Figure 3) comes from two categories: (i) bulky electrical and electronic equipment including television sets, washing machines, refrigerators and air conditioners; and (ii) computer products such as personal computers, laptops, printers, scanners and monitors. These types of WEEE generally contain more hazardous substances than other WEEE products and are consistently covered in producer responsibility schemes overseas. We therefore **propose** to focus primarily on these two categories of WEEE.

Figure 3



- 4.3 For the time being, we do not plan to include such products as mobile phones, digital cameras and video game equipment under the WEEE Scheme. Although the use of these products is increasing and they may over time emerge as a new source of WEEE, there is currently another outlet for them. A considerable portion of such equipment is abandoned before its economic life expires and thus carries value in the commercial second-hand market, which can facilitate reuse, recycling and recovery in an efficient manner.



#### **Tell us your views:**

- Should our WEEE Scheme cover (i) television sets, washing machines, refrigerators and air conditioners, and (ii) computer products?

- 4.4 Hereinafter, we will refer to television sets, washing machines, refrigerators and air conditioners, and computer products (including personal computers, laptops, printers, scanners and monitors) collectively as “regulated products” and the waste generated from such products as “regulated WEEE”.

### **Collection and Recycling Targets**

- 4.5 At present, households in Hong Kong generate about 10 kg of WEEE per person per year. We envisage that 4 kg per person per year could be collected through the WEEE Scheme based on the experience of the European Union. It is likely that about 80% of the components, materials and substances thus collected could be reused or recycled.
- 4.6 Under the existing voluntary initiatives, a pilot WEEE processing programme funded by the Government is operating in Kowloon Bay, with an annual capacity of 130 tonnes of WEEE. Another recycling scheme with an annual capacity of 250 tonnes of WEEE is also being taken forward at the EcoPark with funding support from the Environment and Conservation Fund. Making reference to the

experience of the European Union of 4 kg per person per year, we expect some 30,000 tonnes of regulated WEEE will require processing in Hong Kong each year, barring future increases. This would require a sizable expansion of the current scale of operations to facilitate a circular economy, promote technological upgrades in local WEEE recycling, and create job opportunities.



## Chapter 5 - Providing Proper Treatment

- 5.1 The proper treatment and recycling of WEEE involves various dismantling, detoxification and recovery processes. International experience has shown that WEEE schemes typically require local WEEE processing facilities that have adequate capacity and appropriate technology.

### The WEEE Treatment Plant

- 5.2 Although Hong Kong has a few recyclers who are treating some of the proposed regulated WEEE products, the capacity is well below that needed to undertake proper treatment and recycling of these products on a commercial, territory-wide basis. Moreover, since much of the WEEE is exported, the volume remaining in Hong Kong is often too small to justify a viable commercial operation, considering the significant capital and recurrent costs incurred and the volatility of commodity prices.
- 5.3 A mandatory control on the proper handling of regulated WEEE, however, would result in an increased volume of WEEE that would have to be treated locally. Internationally, there are cases of governments providing subsidies to kickstart and sustain their recycling industries against the high collection and processing costs and the significant capital investment. In Hong Kong, it is uncertain whether private investments would be forthcoming to fund and operate local WEEE treatment plants on a commercial basis, and there have been calls from the public for the Government to contribute to the WEEE Scheme. This raises the question of whether the Government should subsidize a business that could be viable on its own. We maintain an open mind at this stage and welcome views, in particular those from existing or potential operators.

### The WEEE Management Contractor

- 5.4 We plan to appoint, by open tender, a WEEE Management Contractor ("WMC"). The appointed WMC would process WEEE obtained from the enhanced collection network (to be discussed in Paragraphs 6.4 to 6.6). It would be required to establish an efficient system for collecting the regulated WEEE

from the various collection outlets; construct licensed recycling facilities; develop an education/publicity programme to promote the re-use and refurbishment of WEEE; and meet the terms and conditions set forth by the Government (including the collection and recycling targets referred to in Paragraphs 4.5 to 4.6).

5.5 By appointing a competent contractor to carry out these functions, we could:

- (a) ensure older regulated products were collected and treated, even if they were not covered under the enhanced collection network discussed in Chapter 6;
- (b) enhance the interface between the collection and processing of regulated WEEE so that logistics could be arranged more efficiently, thereby minimizing the need for storage;
- (c) ensure that only environmentally-sound treatment methods would be deployed in WEEE processing and that recyclables could be recovered more thoroughly; and
- (d) operate an economy of scale which could help bring down operating costs, particularly for sophisticated treatment processes which are often costly for small-scale operators.

5.6 It is noteworthy that while the appointed WMC is referred to in the singular, there is an option of appointing multiple contractors in the open tender to jointly undertake WMC functions should this prove to be more cost effective. For example, specialization could be taken into account, with one contractor focusing on treating computer products and another on other regulated products. Alternatively, the procurement of services from a network of existing operators is also an option that could be considered further.

## Historical Products

- 5.7 At this stage, we assume historical products would be covered under the WEEE Scheme. This would mean they would be treated, for free, regardless of the channels through which they were collected or whether a financial contribution had been previously made towards their treatment. Arguably, this could lead to cross-subsidization across different types of regulated products. But since the overwhelming majority of households in Hong Kong own at least some regulated products, any cross-subsidization would be nominal in nature. The volume of waste from historical products would also diminish over time. Indeed, if we were to exclude historical products, we would incur a significant delay in realizing the intended environmental benefits under the WEEE Scheme.
- 5.8 Another possible concern in offering free treatment for historical products is that recyclers from outside Hong Kong might find this an incentive to exploit our system by bringing in their own WEEE for processing. To prevent this, used regulated products imported from outside Hong Kong for sale in the local market would also be subject to the mandatory WEEE Scheme and be required to carry a label, as discussed in Chapter 7. Furthermore, we propose to step up the import/export control of WEEE, as discussed in Chapter 6. Based on present arisings, it is not evident that waste from outside Hong Kong would create a problem for the WEEE treatment plant.

## Licensing for the Handling of WEEE

- 5.9 A Waste Disposal License is currently required under the Waste Disposal Ordinance for dismantling and treating certain hazardous components, such as cathode ray tubes, refrigerants, mercury switches and batteries which contain a high concentration of hazardous constituents. To ensure proper handling processes, we **propose** to extend this requirement to cover any person involved in dismantling or recycling regulated WEEE regardless of whether hazardous constituents are involved.

5.10 Storage is another area of concern. At present, there are a number of problematic sites providing storage for WEEE, principally across the New Territories (cf. Figure 2). We **propose** to establish a licensing system for storage sites of used regulated products and regulated WEEE. Any person who intends to operate such a storage site would be required to first obtain a licence and for that purpose have to declare details of the proposed operation such as the type and quantity of used regulated products or regulated WEEE to be stored, the maximum storage capacity, etc. He should also satisfy certain housekeeping requirements pertinent to the safety and environmental conditions at the site concerned. For example, there should be a roofed structure and paved areas, a maximum stack height, security measures and record-keeping arrangements. Other statutory requirements under existing legislation on fire safety, environmental hygiene and occupational health would continue to apply.



#### **Tell us your views:**

- Should we introduce a licensing requirement for the dismantling and recycling of regulated WEEE and for the storage sites for used regulated products and regulated WEEE?

## Chapter 6 - Managing the Flow of WEEE

- 6.1 Effective measures will be needed to properly manage the flow of WEEE after the implementation of the WEEE Scheme. On the one hand, it is important to ensure that an adequate volume of locally generated WEEE is collected for local treatment so that any investment in the WEEE treatment plant is well justified. On the other hand, we have to ensure that WEEE generated overseas is not dumped in Hong Kong, which would create a burden for our new treatment plant.

### Landfill Disposal Ban

- 6.2 It is fundamentally important for environmental reasons to ensure that WEEE does not end up in landfills as far as reasonably practicable. Indeed, the more that is disposed of at landfills, the less there is available for treatment. We therefore **propose** that regulated WEEE be banned from disposal as ordinary trash and be collected separately for recycling. This would provide the necessary legal basis to enforce the diversion of regulated WEEE to proper recycling facilities, including notably the WEEE treatment plant.
- 6.3 Since the WEEE Scheme does not apply to all forms of WEEE as explained in Paragraph 4.2, the proposed ban would only apply to television sets, washing machines, refrigerators and air conditioners, and computer products. Non-regulated WEEE, which form a small portion of the total quantity of WEEE, may continue to be disposed of in our landfills. However, with the enhancements to the present system now proposed under the WEEE Scheme, some non-regulated WEEE may be channeled into our collection network for processing by the appointed WMC. In any event, public education on 3R (i.e. Reduce, Reuse and Recycle) would continue, educating the public not to dispose of non-regulated WEEE as ordinary trash.



#### Tell us your views:

- Should regulated WEEE be banned from disposal as ordinary trash and be collected separately for recycling?

## Enhanced Collection Network

6.4 It is important that convenient channels are made available to collect regulated WEEE from the public. In Hong Kong, there is already a network of collection outlets comprising:

- (a) **Municipal collection facilities**, including refuse collection points and designated WEEE regional transfer centres which accept WEEE for disposal free of charge;
- (b) **Second-hand dealers**, who often purchase WEEE at a low cost;
- (c) **Charitable organizations**<sup>2</sup>, which organize WEEE refurbishment and donation programmes.

On the whole, these collection channels work fairly well. Not only have they facilitated the public to dispose of WEEE in a proper manner, they have also supported commercial activities for the reuse and recycling of WEEE, created jobs in this field, and served other socially beneficial purposes, such as donating refurbished equipment to the needy. We aim to continue promoting this network of collection outlets.

6.5 To enhance our collection system, we **propose** to require mandatory take-back by retailers free of charge on a “new for old” basis. Specifically, when a consumer purchases a regulated product, the retailer is required to take back the used equipment that is being replaced (if any), irrespective of whether it was originally purchased from that same retailer. The experience overseas has been for take-back to be arranged at the time of delivery or installation of new items where retailers provide this service (mostly for bulky items). We would work out the operational details in consultation with the trade, giving regard to the contextual situation in Hong Kong where delivery and installation are serviced separately and often outsourced.

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<sup>2</sup> For example, Caritas Hong Kong, St. James Settlement, the Salvation Army and Christian Action.

6.6 At the risk of stating the obvious, consumers have a choice to keep their old equipment for continued use or dispose of it through alternative means. In such cases, the retailer's take-back obligation would be deemed discharged. It is then the responsibility of the consumer to arrange for proper disposal of the old equipment. A labeling system would identify regulated products for which contributions have been made towards the costs of the WEEE Scheme (see Chapter 7). The appointed WMC would provide free pick-up and treatment services for these labeled regulated products so the consumer could contact them directly when they are ready to discard their product. However, initially most of the regulated products being discarded would not carry a label because they would be historical products that were purchased prior to the implementation of the mandatory WEEE Scheme. In this case, the consumer would have to bear any logistical costs incurred. For example, they might bring the old equipment to a regional transfer center designated for WEEE collection themselves, or pay the appointed WMC a handling fee to cover their pick-up service or other logistical costs.



**Tell us your views:**

- Should retailers offer consumers mandatory take-back services free of charge on a "new for old" basis?



## Import and Export Controls

6.7 At present, certain import and export controls have been imposed under the Waste Disposal Ordinance (Cap 354) for monitors and televisions with cathode ray tubes as well as batteries. Such controls should be strengthened for the following reasons:

(a) It is currently not unlawful to import WEEE that is subject to our scheme. Some WEEE is brought into Hong Kong with a view to being transshipped or re-exported to neighbouring regions for reuse or recycling. Such WEEE could, however, end up remaining in Hong Kong permanently if the transshipment or re-export were not feasible due to economic or regulatory reasons. This could create an undue financial burden on our scheme because these products would need to be properly treated and disposed of. It could also open a loophole for free-riders aiming to intentionally exploit the free treatment offered for regulated WEEE in Hong Kong.

(b) While exporting second-hand products that remain functional is coherent with our general waste management strategy, there are also valid concerns that this WEEE might be exported to developing countries that lack the safety, environmental awareness or proper technology to process WEEE safely. The export of this WEEE could also reduce the volume of WEEE being treated locally and thus affect the economy of scale and viability of the local business.

6.8 We therefore **propose** to apply permit controls to the import and export of used regulated products and regulated WEEE, taking into account such factors as the source and/or destination of the shipment, the availability of consent from the relevant competent authorities overseas, the arrangements for proper treatment of the WEEE concerned, the certification of relevant laboratory testing, etc. In order to safeguard against attempts to circumvent these controls, stringent screening criteria would apply to used regulated products declared as reusable goods rather than waste.



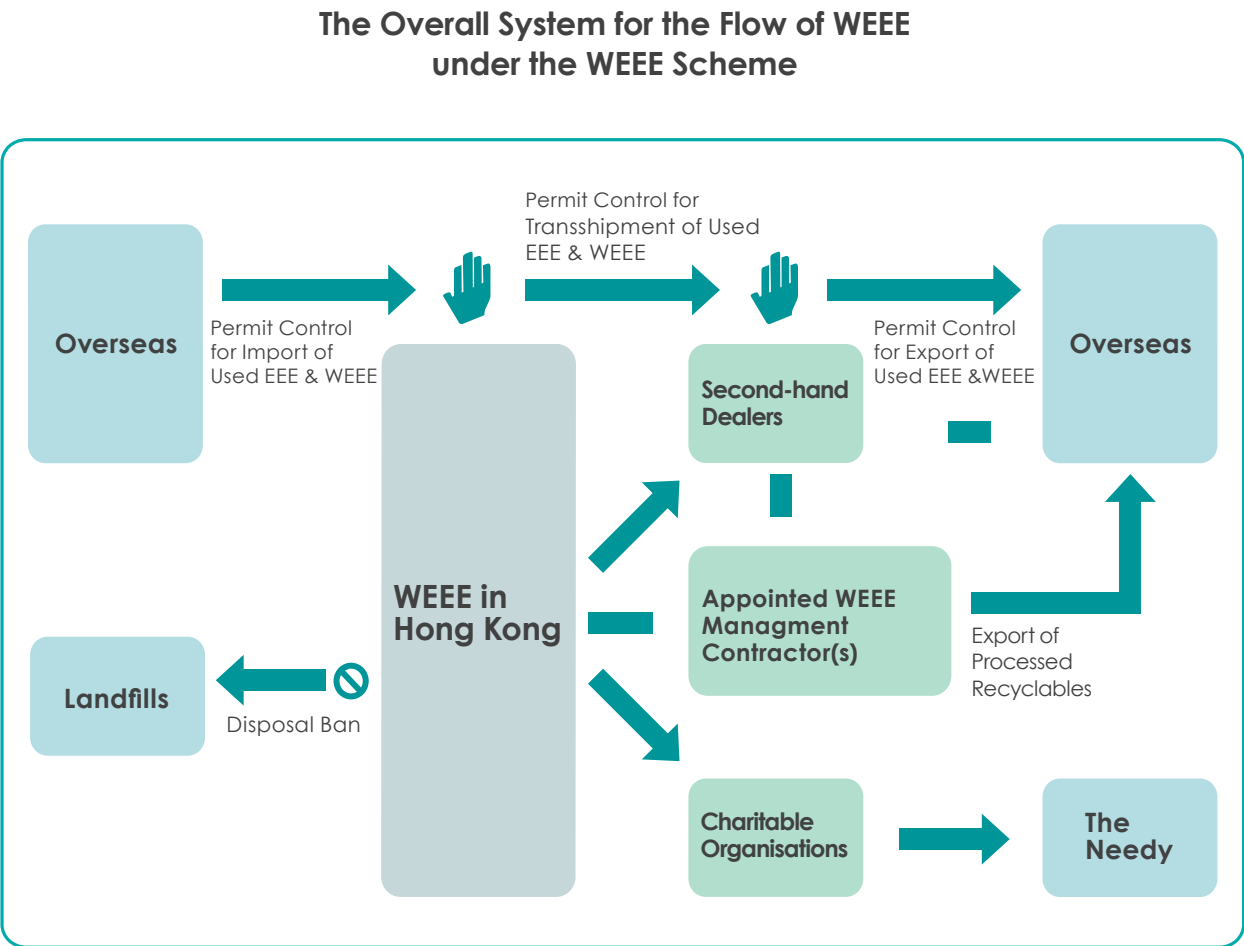
### Tell us your views:

- Should we apply permit controls to the import and export of used regulated products and regulated WEEE?

# The Overall System

6.9 For ease of reference, Figure 4 summarizes the overall system for the flow of WEEE under the enhanced control measures and initiatives proposed in this Chapter. To ensure that the various control measures are effective, suitable sanctions in the form of penalties or economic incentives would apply.

Figure 4



## Chapter 7 - Sharing the Costs

- 7.1 In keeping with the “polluter pays” principle, the WEEE Scheme should seek to recover the costs for waste collection, recycling processes and other management and administrative matters.

### Cost Recovery Mechanism

- 7.2 Of the three charging methods mentioned in Paragraph 2.3(c), an end-of-life fee could become a disincentive to some consumers and thus may encourage illegal dumping and free-riding by placing products in the municipal waste system. This would be very difficult and costly to enforce against, and it would be unfair to other consumers because it would increase the burden on them. Over time, it would create pressure to increase the end-of-life fee, which would result in a further disincentive to pay the fee and properly dispose of WEEE. Internationally, Japan is the only country we are aware of that adopts an end-of-life fee. It is more the exception rather than the norm and its feasibility should be read in the context that local manufacturers take a significant role in promoting and managing the collection and treatment of WEEE. Hong Kong lacks such a strong industrial base and an end-of-life fee is not very feasible in our community.
- 7.3 Without prejudice to further public deliberations on the option of an end-of-life fee, we **propose** to impose an appropriate fee on all new and used regulated products imported for sale into Hong Kong, to recover the costs of the mandatory WEEE Scheme. Subject to this consultation and other implementation details to be ironed out, we envisage two options for how this could be administered. Importers and distributors could become the agents for collecting the fee, which would then have to be paid when the relevant products were brought into Hong Kong for local sale. This cost could ultimately be recovered along the supply chain, wholly or partially, from consumers. Alternatively, retailers could collect the fee from consumers at the point of sale when a transaction is completed. We will engage importers, distributors and retailers in more detailed discussions before identifying the preferred option, taking into account their current modes of operation, administrative convenience and other operational issues.

7.4 In any case, consumers will have to contribute to the costs of the overall collection and treatment of WEEE when purchasing new regulated products. We envision two options for arranging such contributions at retail outlets:

- (a) The fee could be incorporated into the retail price at the time of sale. This “inclusive” approach carries some advantages because the listed retail price would be the exact amount that consumers would pay, and no more. It is generally more convenient from the perspective of the shopping experience.
- (b) The fee could be a separate payment on top of the retail price. This option would give more clarity as the fee would be specifically acknowledged as an item in the receipt.

We would determine the most suitable approach for Hong Kong after taking into account the public’s preference, as revealed in this consultation exercise, and other issues of implementation.

### **Tell us your views:**



- Should some form of fee be introduced to recover the costs of the WEEE Scheme?
- Is an end-of-life fee infeasible in Hong Kong? Should a fee at the point of sale be applied instead?
- If we decide on a fee at the point of sale, should it be incorporated into the retail price as a combined payment?

## **Level of Contributions**

7.5 An appropriate level of fee under the WEEE Scheme is difficult to specify at this stage, because the actual costs would depend on a basket of factors, including the specific features of the Scheme. Recent polls, however, suggest that about half of the public (49.2%) consider a fee up to 2.5% of the retail price to be reasonable, whereas another quarter (23.9%) find 2.5% to 5% of the retail price to be reasonable. Given that under the “polluter pays” principle we should seek to recover the full costs of the scheme, the level of fees should reflect the extent of treatment required. This is related more to the size and components of the WEEE rather than the retail price. The operating

costs in other jurisdictions also have an impact on the level of fees under their WEEE Schemes. Making reference to the fees charged in some overseas jurisdictions, fees could be around \$100 for a small WEEE (such as a small television) and around \$200 to \$250 for a bulky one (such as a large television, refrigerator and washing machine). Fees for computer products would be expected to be lower. The exact level of the fee would be subject to the detailed design of the WEEE Scheme in Hong Kong. We would determine the level of the fee after the tendering process subject to the following guiding principles:

- (a) adherence to “polluter pays”: the aggregate fees collected should in principle be able to cover the full costs of the WEEE Scheme;
- (b) differential rates would apply: products requiring more complicated treatment processes would be charged a higher fee; and
- (c) the charging system, including the fee collection mechanism, would be simple and easy to understand.

**7.6** Should we decide to charge the fee at the point of sale, a labeling system would need to be in place to identify which products were subject to the fee under the WEEE Scheme. Our preliminary understanding is that individual manufacturers may be able to affix the label when the regulated products are imported into Hong Kong. However, in many cases the more efficient way would be for retailers to affix the label at the point of sale. We would work out operational details in conjunction with the trades following the public consultation.

7.7 As discussed in Paragraph 5.3, we maintain an open mind on whether Government assistance should be made available to kickstart the WEEE Scheme. Assistance has been provided in some countries with a mandatory WEEE Scheme. This supports the growth of a recycling industry, which is needed under the Scheme; however, the WEEE Scheme should be self-financing in the long term. We will consider the issue further, taking into account the outcome of the consultation and other relevant factors.

### **Tell us your views:**



- Under the “polluter pays” principle, the full costs of the Scheme should be recovered. Should this principle be applied fully with WEEE producers, including manufacturers, importers, brand agents, distributors, retailers and consumers, sharing out the full costs?
- Are there other stakeholders who you think should also share the costs?
- Is it appropriate or necessary for the Government to provide some initial support to kickstart the WEEE Scheme and facilitate the development of the recycling industry?

### Chapter 8 - Mainstream Proposals

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8.1 WEEE contains hazardous components that are harmful to the environment and human health if not properly treated or disposed of. There is both an international trend and a consensus locally to tackle WEEE through a mandatory producer responsibility scheme. This Consultation Document has presented the Government's analysis of the situation and on that basis we set out proposals for managing WEEE in Hong Kong.

#### A Summary

8.2 In line with the Product Eco-responsibility Ordinance (Cap 603), we propose under Paragraph 4.2 to establish for Hong Kong a WEEE Scheme which would cover (i) bulky electrical and electronic equipment including television sets, washing machines, refrigerators and air conditioners, and (ii) computer products such as personal computers, laptops, printers, scanners and monitors.

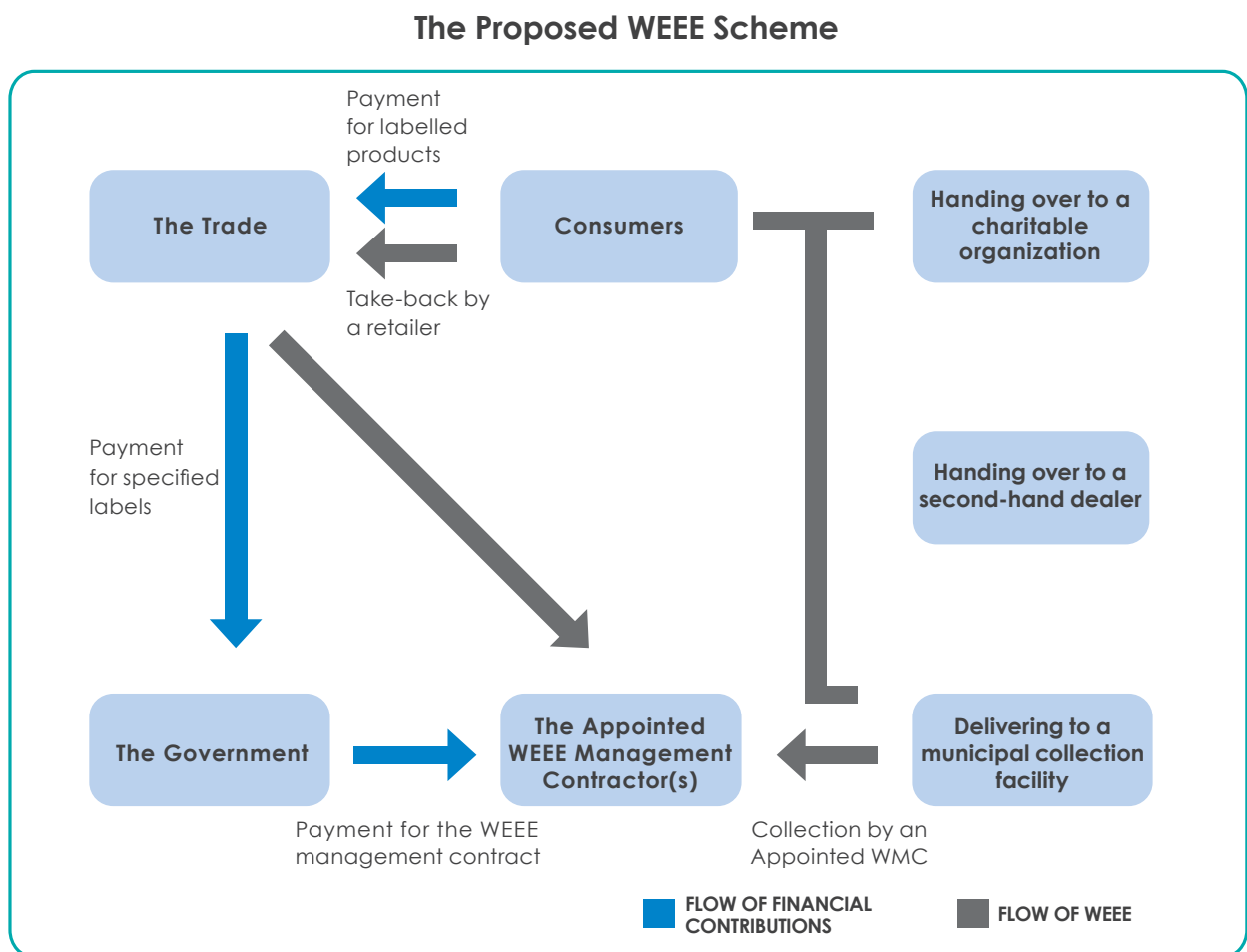
8.3 Our thinking on how the proposed WEEE Scheme would operate is summarized in Figure 5 and based on the key features proposed and explained in Chapters 5 and 6. Our ultimate goal is for everyone who generates WEEE to share responsibility for its safe and sustainable collection, treatment and disposal. The Scheme would require various stakeholders to contribute in the following ways:

- (a) Consumers would contribute to the costs of collecting and treating the regulated WEEE when purchasing new regulated products. They would also ensure that any regulated WEEE they generated was properly handled by : arranging take-back upon the purchase of new equipment; arranging collection from the appointed WMC; arranging delivery to municipal collection facilities; or, handing over the item(s) to a second-hand dealer or a charitable organization.
- (b) Importers, distributors and retailers would ensure that regulated products to be sold were affixed with the specified labels, representing contributions to the costs of the WEEE Scheme in accordance with the labeling and charging system to be worked out.



- (c) When a new regulated product is purchased by a consumer, retailers would take back their equivalent old equipment (including historical items) free of charge on a “new for old” basis, and properly dispose of it through the appointed WMC.
- (d) The appointed WMC would, in accordance with the management contract, provide WEEE collection and recycling services in strict compliance with the relevant legislation and relevant best practices in waste management.
- (e) Second-hand dealers and recyclers would properly dispose of regulated WEEE collected from consumers in accordance with the tightened import and export controls and licensing requirements for dismantling, recycling and storing regulated WEEE.

**Figure 5**



- 8.4 The Government will monitor the operation of the Scheme and perform relevant functions, such as selecting the appointed WMC and monitoring its performance, determining and reviewing the level of fee to be collected from consumers for regulated products and the appropriate collection mechanism, and enforcing the relevant legislation. If more than one recycler emerges, the Government will strive to maintain a level-playing field for WEEE recyclers to develop their business. The Government will also promote public education and information sharing among all stakeholders. Furthermore, the Government will consider whether assistance should be provided for setting up the WEEE Scheme in Hong Kong and if so, what form that should take.

## **Miscellaneous Alternatives**

- 8.5 The proposals in this Consultation Document collectively outline a system with substantial Government involvement. International experience, however, suggests there are alternative ways to operate a WEEE Scheme. For example, in some countries the concerned trades have taken the lead in implementing the Scheme. This usually entails establishing a producer responsibility organization (cf. Paragraph 2.3(b)) to carry out the functions of the appointed WMC and manage the financing of the Scheme (including fee charging).
- 8.6 This option upholds the principle of producer responsibility and indeed allows more flexible coordination within the trade which might facilitate cost reduction. If we were to go for an end-of-life fee, this trade-led approach would be highly relevant. However, as already stated, Hong Kong does not have a strong industrial base. The manufacturers of electrical and electronic equipment operate outside our jurisdiction. We would have to look to importers, distributors and retailers to manage the Scheme instead. At this stage, we maintain an open mind about this alternative mode, while noting the practical issues of enforcement and ensuring compliance.

- 8.7 There are pros and cons for each of our mainstream proposals when evaluated against their competing alternatives. The Government has yet to make any decisions on these issues and welcomes the public's views.

## Chapter 9 - We Seek Your Advice

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9.1 We specifically invite your views and comments on the following issues:

- (a) Should our WEEE Scheme cover (i) television sets, washing machines, refrigerators and air conditioners, and (ii) computer products? [cf. Paragraphs 4.2 to 4.3]
- (b) Should we introduce a licensing requirement for the dismantling and recycling of regulated WEEE and for the storage sites for used regulated products and regulated WEEE? [cf. Paragraphs 5.9 to 5.10]
- (c) Should regulated WEEE be banned from disposal as ordinary trash and be collected separately for recycling? [cf. Paragraphs 6.2 to 6.3]
- (d) Should retailers offer consumers mandatory take-back services free of charge on a “new for old” basis? [cf. Paragraphs 6.4 to 6.6]
- (e) Should we apply permit controls to the import and export of used regulated products and regulated WEEE? [cf. Paragraphs 6.7 to 6.8]
- (f) Should some form of fee be introduced to recover the costs of the WEEE Scheme? [cf. Paragraphs 7.2 to 7.4]
- (g) Is an end-of-life fee infeasible in Hong Kong? Should a fee at the point of sale be applied instead? [cf. Paragraphs 7.2 to 7.4]
- (h) If we decide on a fee at the point of sale, should it be incorporated into the retail price as a combined payment? [cf. Paragraphs 7.2 to 7.4]
- (i) Under the “polluter pays” principle, the full costs of the scheme should be recovered. Should this principle be applied fully, with WEEE producers, including manufacturers, importers, brand agents, distributors, retailers and consumers, sharing out the full costs? [cf. Paragraphs 7.5 to 7.7]
- (j) Are there other stakeholders who you think should also share the costs? [cf. Paragraphs 7.5 to 7.7]

- (k) Is it appropriate or necessary for the Government to provide some initial support to kickstart the WEEE Scheme and facilitate the development of the recycling industry? [cf. Paragraphs 7.5 to 7.7]

We also welcome general views about the shared responsibilities among various stakeholders as summarized in Paragraphs 8.3 to 8.4.

## How to Respond?

- 9.2 Please send us your views and comments by post, email or facsimile, or over the Internet on or before Friday, 30 April 2010 to:

<b>BY POST:</b>	Environmental Protection Department Waste Management Policy Group Room 4522, 45th Floor, Revenue Tower 5 Gloucester Road Hong Kong
<b>BY EMAIL:</b>	<a href="mailto:weee@epd.gov.hk">weee@epd.gov.hk</a>
<b>BY FACSIMILE:</b>	2318 1877
<b>BY INTERNET:</b>	<a href="http://www.epd.gov.hk/epd/weee">http://www.epd.gov.hk/epd/weee</a>

If returning by post, you may consider using the postage paid Response Form enclosed in this Consultation Document. For enquiries, please call 2594 6063.

## Please Note

- 9.3 The Government may wish, either in discussion with others or in any subsequent report, whether privately or publicly, to be able to refer to and attribute views submitted in response to this Consultation Document. Any request to treat all or part of a response in confidence will be respected, but if no such request is made, it will be assumed that the response is not intended to be confidential.

## Annex A

### Toxic Substances in Major Electrical Appliances and Their Possible Effects on Human Health

#### A. Refrigerator and Air-Conditioner

Parts and Components	Toxic Substances	Possible Effect on Human Health
Circuit board	Lead	<ol style="list-style-type: none"> <li>1. causes cognitive deficits in children</li> <li>2. damages kidney, neural, circulatory and reproductive systems in adults</li> </ol>
Circuit board and wire	Copper	<ol style="list-style-type: none"> <li>1. causes gastrointestinal tract irritation</li> <li>2. causes damage to liver and kidneys, brain disorder</li> </ol>
Capacitor	Polychlorinated Biphenyls (PCBs)	<ol style="list-style-type: none"> <li>1. carcinogenic</li> <li>2. affect immune, reproductive, nervous and endocrine system</li> </ol>
Switch and relay	Mercury	<ol style="list-style-type: none"> <li>1. can be easily absorbed by skin, respiratory and digestive system, also transferred by lactation</li> <li>2. damages liver and neural system</li> <li>3. accumulates in living organisms and concentrates through food chain</li> </ol>
Refrigerant	Chlorofluorocarbons (CFCs) (mostly in refrigerators)	<ol style="list-style-type: none"> <li>1. destroy the protective ozone layer above the earth, hence increase the amount of ultraviolet radiation that causes skin cancer</li> </ol>
	Hydrochlorofluorocarbons (HCFCs) (mostly in window air conditioning units)	<ol style="list-style-type: none"> <li>2. contribute to global climate change, which can lead directly to disturbances in ecological systems, such as inducing serious infectious diseases and increasing air and water pollution which affect human health</li> </ol>

## B. Washing Machine

Parts and Components	Toxic Substances	Possible Effect on Human Health
Circuit board	Lead	1. causes cognitive deficits in children 2. damages kidney, neural, circulatory and reproductive systems in adults
Circuit board and wire	Copper	1. causes gastrointestinal tract irritation 2. causes damage to liver and kidneys, brain disorder



## C. CRT Television and Monitor

Parts and Components	Toxic Substances	Possible Effect on Human Health
Glass funnel and circuit board	Lead	<ol style="list-style-type: none"> <li>1. causes cognitive deficits in children</li> <li>2. damages kidney, neural, circulatory and reproductive systems in adults</li> </ol>
Glass funnel	Phosphor	<ol style="list-style-type: none"> <li>1. causes hyperphosphoremia</li> <li>2. causes osteoporosis as body calcium content decreases</li> </ol>
Panel glass of CRT	Barium	<ol style="list-style-type: none"> <li>1. causes weakness, dyspnoea and cardiac irregularities when inhaled</li> </ol>
Switch pub and glass funnel	Cadmium	<ol style="list-style-type: none"> <li>1. causes kidney and skeletal damage</li> </ol>
Circuit board	Mercury	<ol style="list-style-type: none"> <li>1. can be easily absorbed by skin, respiratory and digestive system, also transferred by lactation</li> <li>2. damages liver and neural system</li> <li>3. accumulates in living organisms and concentrates through food chain</li> </ol>
Circuit board and plastic casing	Brominated Flame Retardant	<ol style="list-style-type: none"> <li>1. causes cognitive deficit</li> <li>2. affects thyroid and sex hormone secretion</li> </ol>
Outer layer of wires and plastic casing	PVC	<ol style="list-style-type: none"> <li>1. releases dioxins and other carcinogenic substances when burned</li> </ol>

## D. Main Unit of Computer Equipment

Parts and Components	Toxic Substances	Possible Effect on Human Health
Circuit board	Lead	<ol style="list-style-type: none"> <li>1. causes cognitive deficits in children</li> <li>2. damages kidney, neural, circulatory and reproductive systems in adults</li> </ol>
	Mercury	<ol style="list-style-type: none"> <li>1. can be easily absorbed by skin, respiratory and digestive system, also transferred by lactation</li> <li>2. damages liver and neural system</li> <li>3. accumulates in living organisms and concentrates through food chain</li> </ol>
Circuit board and plastic casing	Brominated Flame Retardant	<ol style="list-style-type: none"> <li>1. causes cognitive deficit</li> <li>2. affects thyroid and sex hormone secretion</li> </ol>
Cabling and casing	PVC	<ol style="list-style-type: none"> <li>1. releases dioxins and other carcinogenic substances when burned</li> </ol>
Motherboard	Beryllium	<ol style="list-style-type: none"> <li>1. carcinogenic</li> <li>2. causes lung disease</li> </ol>
Steel plate	Chromium	<ol style="list-style-type: none"> <li>1. can be easily absorbed</li> <li>2. produces various toxic effects in cells and damage DNA</li> </ol>

## E. Printer and Scanner

Parts and Components	Toxic Substances	Possible Effect on Human Health
Circuit board	Mercury	<ol style="list-style-type: none"> <li>1. can be easily absorbed by skin, respiratory and digestive system, also transferred by lactation</li> <li>2. damages liver and neural system</li> <li>3. accumulates in living organisms and concentrates through food chain</li> </ol>
Circuit board and plastic casing	Brominated Flame Retardant	<ol style="list-style-type: none"> <li>1. causes cognitive deficit</li> <li>2. affects thyroid and sex hormone secretion</li> </ol>
Cabling and casing	PVC	<ol style="list-style-type: none"> <li>1. releases dioxins and other carcinogenic substances when burned</li> </ol>
Printer cartridge	Toners	<ol style="list-style-type: none"> <li>1. irritates respiratory system</li> <li>2. possibly carcinogenic</li> </ol>

## Annex B

### Overseas Experience in Selected Jurisdictions

	The Netherlands	Alberta, Canada	Japan	Taiwan
Commencement of statutory control	August 2004	October 2004	April 2001 (under two separate schemes)	July 2002 (on recycling and reuse)
Coverage	<ul style="list-style-type: none"> <li>- Same as the coverage under the European Community Directive 2002/96/EC<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>- Televisions</li> <li>- Computer products</li> <li>- Audio and video playback and recording systems</li> <li>- Telephones and fax machines</li> <li>- Cell phones and other wireless devices</li> <li>- Electronic game equipment</li> </ul>	<ul style="list-style-type: none"> <li>- Televisions</li> <li>- Washing machines and dryers</li> <li>- Air-conditioners</li> <li>- Refrigerators and freezers</li> <li>- Computer products</li> </ul>	<ul style="list-style-type: none"> <li>- Major household appliances (including televisions, refrigerators, washing machines, air-conditioners and fans)</li> <li>- Computer products</li> <li>- Lighting equipment</li> </ul>
WEEE collection	<ul style="list-style-type: none"> <li>- Take-back by retailers (free of charge)</li> <li>- Collection at designated points (free of charge)</li> <li>- Pick-up by producer responsibility organizations</li> </ul>	<ul style="list-style-type: none"> <li>- Collection at designated points (free of charge)</li> </ul>	<ul style="list-style-type: none"> <li>- Take-back by retailers (free of charge)</li> <li>- Collection at designated points (free of charge)</li> <li>- Pick-up by post office (computer products only)</li> </ul>	<ul style="list-style-type: none"> <li>- Take-back by retailers</li> <li>- Pick-up by local collector or cleansing crew</li> </ul>

<sup>3</sup> Includes: (i) large household appliances; (ii) small household appliances; (iii) IT and telecommunications equipment; (iv) consumer equipment; (v) lighting equipment; (vi) electrical and electronic tools ; (vii) toys, leisure and sports equipment; (viii) medical devices ; (ix) monitoring and control instruments; and (x) automatic dispensers.

	The Netherlands	Alberta, Canada	Japan	Taiwan
WEEE treatment	<ul style="list-style-type: none"> <li>- Five specialist companies</li> </ul>	<ul style="list-style-type: none"> <li>- Five qualified recyclers and processors, which have to be registered to fulfill certain requirements including no downstream processing in non-OECD countries</li> </ul>	<ul style="list-style-type: none"> <li>- Two groups of recycling facilities in which manufacturers and importers hold shares</li> </ul>	<ul style="list-style-type: none"> <li>- Three groups of registered recyclers respectively responsible for (i) household appliances, (ii) IT products and (iii) lamps</li> </ul>
Cost recovery method	<ul style="list-style-type: none"> <li>- A visible fee paid by consumers, ranging from EUR 3 to EUR 17 per item</li> </ul>	<ul style="list-style-type: none"> <li>- A visible fee paid by consumers, ranging from CAD 5 to CAD 45 per item</li> </ul>	<ul style="list-style-type: none"> <li>- An end-of-life fee paid by consumers, ranging from JPY 1785 to JPY 5869 per item</li> </ul>	<ul style="list-style-type: none"> <li>- An environmental fee paid by manufacturers and importers, ranging from TWD 247 to TWD 606 per item</li> </ul>
Ancillary measures	<ul style="list-style-type: none"> <li>- A landfill ban on WEEE</li> <li>- A labeling requirement on equipment subject to the WEEE scheme</li> </ul>	<ul style="list-style-type: none"> <li>- Export controls on hazardous recyclables</li> </ul>	<ul style="list-style-type: none"> <li>- A labeling requirement on household personal computers</li> </ul>	<ul style="list-style-type: none"> <li>- A landfill and incineration ban on WEEE</li> </ul>

\* For general reference, the corresponding exchange rate of the relevant currencies as at 4 December 2009 is :

EUR 1 = HKD 11.6701  
 CAD 1 = HKD 7.3358  
 JPY 100 = HKD 8.7822  
 TWD 1 = HKD 0.2409

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# Response Form

## Part I. (Note)

This is a ☐ corporate response (representing the views of a group or an organization),

☐ private response (representing the views of an individual),

by \_\_\_\_\_

(name of person or organization)

at \_\_\_\_\_ and \_\_\_\_\_

(telephone)

(email)

Please select one item from the following options that best describe your role in the context of this submission :

☐ Consumer

☐ Manufacturer, importer or brand agent

☐ Distributor or retailer

☐ Second-hand dealer or collector

☐ Recycler

☐ Others (Please specify) \_\_\_\_\_

**Note:** The Government may wish, either in discussion with others or in any subsequent report, whether privately or publicly, to be able to refer to and attribute views submitted in this response. Any request to treat all or part of a response in confidence will be respected, but if no such request is made, it will be assumed that the response is not intended to be confidential.

## Part II.

### 1. Coverage of the WEEE Scheme

1.1 Should our WEEE Scheme cover (i) television sets, washing machines, refrigerators and air conditioners, and (ii) computer products?

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### 2. Proper Treatment of WEEE

2.1 Should we introduce a licensing requirement for the dismantling and recycling of regulated WEEE and for the storage sites for used regulated products and regulated WEEE?

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### **3. Managing the Flow of WEEE**

- 3.1 Should regulated WEEE be banned from disposal as ordinary trash and be collected separately for recycling?**

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- 3.2 Should retailers offer consumers mandatory take-back services free of charge on a "new for old" basis?**

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- 3.3 Should we apply permit controls to the import and export of used regulated products and regulated WEEE?**

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### **4. Sharing of the Costs**

- 4.1 Should some form of fee be introduced to recover the costs of the WEEE Scheme?**

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**4.2 Is an end-of-life fee infeasible in Hong Kong? Should a fee at the point of sale be collected instead?**

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**4.3 If we decide on a fee at the point of sale, should it be incorporated into the retail price as a combined payment?**

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**4.4 Under the "polluter pays" principle, the full costs of the scheme should be recovered. Should this principle be applied fully, with WEEE producers, including manufacturers, importers, brand agents, distributors, retailers and consumers, sharing out the full costs?**

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**4.5 Are there other stakeholders who you think should also share the costs?**

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**4.6 Is it appropriate or necessary for the Government to provide some initial support to kickstart the WEEE Scheme and facilitate the development of the recycling industry?**

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