

**SME Development Fund (SDF)/
Dedicated Fund on Branding, Upgrading and Domestic Sales (BUD Fund)
(Organisation Support Programme) (OSP)**

Final Report on Approved Project

Project ref. no. : D14 001 010

Project title : **Enhancing the Environment, Health and Safety
(EHS) Awareness of the WEEE Recycling
Industry in HK**

Period covered : From 20/11/14 to 19/05/16
(dd/mm/yy) (dd/mm/yy)

1. Project Details

(Please mark with "*" if any of the following project details is different from that in the project proposal appended to the project agreement.)

Project Summary (in about 150 words)

According to the documents of Legislative Council in 2014, the Environmental Protection Department (EPD) are planning to amend the Waste Disposal Ordinance (Cap. 354) (WDO) such that

(a) for treatment reprocessing and recycling of regulated e-waste, a waste disposal license will be required and will only be granted if the operator can demonstrate that the processes adopted are environmentally sound;

(b) for storage of regulated e-waste, a storage site operator will also have to obtain a waste disposal license under the WDO and comply with terms and conditions imposed thereunder.

However, the WEEE handling techniques of the recycling industry in Hong Kong is far behind compared to other regions, and the local SMEs WEEE collectors and recycling companies may not acquire enough knowledge on environmental, safety and health (EHS) issue to deal with the WEEE. In the long run, it will create a considerable impact on their operation and even obtaining the waste disposal license.

Therefore, SMEs need to have sufficient knowledge and efficient methods towards EHS issue in collection, transportation, storage and dismantling of WEEE in Hong Kong. Our project will conduct overseas studies, produce videos, conduct a gap analysis, compile e-guidebook and organize seminars and workshop to strengthen the awareness of EHS and some technology issues in handling and recycling the WEEE for the recycling industry.

Project Objective(s) (in about 80 words)

1. To learn the best practices of collection, recycling, storage and basic treatment of disposed E-waste by studying overseas well-developed EHS practices of the recycling industry for WEEE
2. To arouse and strengthen the awareness of the E-waste related industries on environmental, safety and health (EHS) issues in handling and recycling electronic waste, for the recyclers and collectors by developing a video and organise seminars/workshop
3. To lay a sound and effective foundation to prepare them for the future WEEE-related regulatory ordinances formulated by the Environment Bureau by developing a localized reference good practice guidelines for Hong Kong recycling SMEs. Consequently, Hong Kong recycling SMEs could be transformed and upgraded and be competitive in handling WEEE recycling business regionally and worldwide
4. Both Collectors and Recyclers have to obtain a waste disposal license under WDO for both treatment and storage, and the license will only be granted if they can demonstrate that their processes adopted are environmentally sound and storage sites are qualified under terms and conditions imposed by the WDO. Without the needed licenses, both the Collector and the Recycler SMEs may go out of business. As such, the proposed SME project is to help both of them to implement the available best practices in the field and elevate their related technological levels, so they can be better prepared and technological ready once the WDO is launched

Grantee/Collaborating Organisation/Implementation Agent

Grantee : The Hong Kong Electronic Industries Association

Collaborating Organisation(s) : Hong Kong General Association of Re-Cycling Business (HKGARB)
Hong Kong Waste Disposal Industry Association

Implementation Agent(s) : The Hong Kong Polytechnic University

Key Personnel

	<u>Name</u>	<u>Company/Organisation</u>	<u>Tel No. & Fax No.</u>
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Project Period

	<u>Commencement Date</u> (day/month/year)	<u>Completion Date</u> (day/month/year)	<u>Project Duration</u> (No. of months)
As stated in project agreement	<u>20/11/2014</u>	<u>19/05/2016</u>	<u>18</u>
Revised (if applicable)	<u></u>	<u></u>	<u></u>

2. Summary of Project Results

Project Deliverables

(Please list out the project deliverables as stated in the project proposal appended to the project agreement and provide details related to the actual result achieved for each of them.)

	Project deliverable	Quantifiable target number (e.g. 100 participants)	Actual result achieved (e.g. 90 participants)	Reasons for not achieving the target, if applicable (e.g. The total number of registered participants was over 120. However, some of them did not show up eventually. Will strengthen promotion and try to make up for the shortfall in the following two seminars.)
a)	Overseas studies	-Two overseas studies will be organised (Germany and South Korea). -Before the two overseas studies, a basic survey would be conducted to study the status quo of the local recycling industry.	-Two overseas studies have been organised (Germany and South Korea). - A basic survey has been conducted to study the status quo of the local recycling industry. Totally 50 questionnaires have been sent 50 companies and 11 replied questionnaires* from 11 SMEs were received. The details of the results of the basic survey can be found in the survey report.	*Originally the project team received 12 SMEs replied questionnaires. However, one of the filled questionnaires was not correct and that SME cannot be reached again after calling them a few times
b)	Videos	1 video taken in South Korea; 1 video taken in Germany (at least 2 clips, around 30 mins each)	1 video taken in South Korea (duration: 33 mins 54 sec); 1 video taken in Germany (duration: 47 mins 3 sec)	
c)	4 seminars	Total 400 participants in 4 Seminars	Kick-off seminar (30/3/2015): 115 2 nd seminar (6/7/2015): 77 3 rd seminar (14/9/2015): 102 4 th seminar (27/10/2015): 75 Total: 369 participants	The total number of registered participants in 4 seminars was 483 (over 400) . <u>Number of registrations:</u> Kick-off seminar: 127 2 nd seminar: 108 3 rd seminar: 133 4 th seminar: 115 However, some of them did not show up eventually, may be due to other sudden change of appointments.
d)	Gap analysis	A localized reference is needed for Hong Kong SMEs by drawing reference from overseas after a gap analysis between Hong Kong WEEE recycling industry and foreign best practices; Initial Review (survey) for 12 SMEs each of which includes a gap analysis on the existing practices against collection of e-waste against the good references which the team has been collected from overseas and other international EHS requirements.	- The Gap analysis is based on the initial review of 11 SMEs* survey's findings. From those replies, the team had further collected information from 6 SMEs (in-depth on-site review). - The details of the results of the gap analysis can be found in the gap analysis report.	*Originally the project team received 12 SMEs replied questionnaires. However, one of the filled questionnaires was not correct and that SME cannot be reached again after calling them a few times

e)	Full day workshop	200 participants	Workshop date: 26/2/2016 Morning session: 93 Afternoon session: 124 Total: 217 participants	
f)	e-book	An e-Book on the Good Practice Guidance and the website for dissemination of information.	An e-Book on the Good Practice Guidance has been compiled and put onto the HKEIA website for dissemination of information and linked to the website of relevant trade associations where appropriate.	

Details of the deliverables (e.g. date, duration, venue, speaker, topic discussed, etc.)

(Please list out in table format if necessary.)

Deliverable (a): Overseas Studies

Overseas study in South Korea was held on 15-18/12/2014 to explore the EHS best practices of WEEE recycling in Korea and the duration was 4 days. The places that have been visited include WEEE collection station, some WEEE logistics distribution centres of famous electronics and electrical companies in Korea, and also some environmental organizations in Korea.

Overseas study in Germany was held on 27-30/4/2015 to explore the EHS best practices of WEEE recycling in Germany and the duration was 4 days. The places that have been visited include several WEEE recycling companies in Germany.

A basic review (survey) before the two overseas studies has been carried out during mid Nov 2014 to early Dec 2014 to understand the current practice of WEEE collectors and recyclers of local SMEs with respect to EHS aspect. We have utilized three methods for conducting the survey, one method was by visiting the companies and the second method was by emailing an online survey and the third method was by phone when we could not get the response from the companies by email. We have sent 50 questionnaires and got 11 replied questionnaires in return. The total response rate was 22%.

Deliverable (b): Videos

Two videos were produced to disseminate the EHS best practices in South Korea and Germany for (1) Collection of e-waste; (2) Transportation of e-waste; (3) E-waste storage site; (4) Basic treatment and disposal of e-waste to the WEEE recycling SMEs in Hong Kong. The duration of South Korea video is 33 mins 54 sec and the duration of Germany video is 47 mins 3 sec.

Deliverable (c): 4 seminarsFirst (Kick-off) seminar

Kick-off seminar (topic: Kick-off Seminar on “Enhancing the Environment, Health and Safety (EHS) Awareness of the WEEE Recycling Industry in HK”) was held on 30 March 2015 from 2:30pm – 5:30pm at M1603, 16/F, Li Ka Shing Tower, The Hong Kong Polytechnic University. The first speaker was Dr Alain Lam who is the Principal Environmental Protection Officer of Environmental Protection Department in HKSAR Government. He introduced the topic “Briefing on key features of the Mandatory PRS on WEEE and its current status”. The second speaker was Dr Suh Youngjin who is the Director of Environment Strategy Team of Samsung Electronics. He gave the presentation of WEEE recycling in Korea the topic is WEEE Recycling (Regulations /Collection & Treatment/Eco-Design) in South Korea. The video taken in South Korea was shown to the participants. Lastly, panel discussion was held to discuss the challenges and situations of WEEE recycling in Hong Kong. The Moderator was Ir Dr Hon Lo Wai-Kwok, BBS, MH, JP and the panel members include Dr Alain Lam of HKEPD, Mr Lo Yiu-Chuen (President of Hong Kong General Association of Re-Cycling Business (HKGARB), Mr Kwok Chun-Sing (Chairman of Hong Kong Recycling Chamber of Commerce) and Prof. Winco Yung (Professor of Department of Industrial and Systems Engineering of HKPolyU).

2nd seminar

2nd seminar (topic: Seminar on “WEEE Recycling- German EHS Best Practice and Latest Technology”) was held on 6 July 2015 from 2:30pm – 5:30pm at M1603, 16/F, Li Ka Shing Tower, The Hong Kong Polytechnic University. The first speaker was Mr Peter Heßler (Managing Director and Acting Partner of Umwelt-und Recyclingtechnik GmbH (URT)). He gave the presentation of WEEE recycling in Germany - EHS Best Practice and Latest Technology in the treatment process of refrigerator and LCD flat screens. The video taken in Germany was shown to the participants. The last session was panel discussion to discuss the challenges and situations of WEEE recycling in Hong Kong. The Moderator was Ir Dr Hon Lo Wai-Kwok, BBS, MH, JP and the panel members include Mr Lawrence Cheung (Senior Environmental Protection Officer of HKEPD, Mr Lo Yiu Chuen (President of Hong Kong General Association of Re-Cycling Business (HKGARB), Mr Thomas Tam (President of Hong Kong Waste Disposal Industry Association), and Prof. Winco Yung (Professor of Department of Industrial and Systems Engineering of HKPolyU).

3rd seminar

3rd seminar (topic: Seminar on “WEEE Recycling - Korea EHS Best Practice and Technology”) was held on 14 September 2015 from 2:30pm – 5:00pm at M1603, 16/F, Li Ka Shing Tower, The Hong Kong Polytechnic University. The first speaker was Mr Jihwan Park (Research & Development Manager, Korea Electronics Recycling Cooperative). His topic was “Environment, Health and Safety in WEEE recycling in Korea” showing the EHS best practices in recycling centres in Korea. The second speaker was Prof. Winco Yung (Professor of Department of Industrial and Systems Engineering of HKPolyU). His topic was “Potential Environmental, Safety, and Health Hazards in WEEE Recycling Process” showing the potential EHS hazards during collection, transportation, storage and basic treatment of WEEE.

4th seminar

4th seminar (topic: Seminar on “Hot Issues and Case Study Sharing for WEEE Recycling Industry in Hong Kong”) was held on 27 October 2015 from 9:15am – 11:45am at M1603, 16/F, Li Ka Shing Tower, The Hong Kong Polytechnic University. The first speaker was Mr Anthony Ng (Senior Certification Officer, Systems & Services Certification, SGS Hong Kong Ltd.) and his topic was Case Study for WEEE Recycling Industry in Hong Kong. The second speaker was Mr Ng Chi-chiu (Senior Station Officer, Support Division, Fire Safety Command, Fire Services Department, HKSAR Government) and his topic was Fire Safety in WEEE Recycling Site. The third speaker was Mr Kenny Wong (Principal Consultant, Environmental Management Division, Hong Kong Productivity Council) and his topic was Recycling industry in HK and introduction on Recycling Fund.

Deliverable (d): Gap analysis

Besides the basic review (survey) carried out in Hong Kong and the overseas studies in Korea and Germany, on-site visits have also been held in 6 companies to have an in-depth study in the EHS practices of WEEE recycling SMEs in Hong Kong.

The Gap Analysis was conducted to identify the operational deficiencies and the suitability of deploying the emerging technologies to tackle EHS problems in e-waste handling processes in Hong Kong, to identify the major barriers to achieve EHS best practices and to consolidate practical ways in upgrading the operation process in Hong Kong with the application on emerging and affordable technologies and best practices in Korea and Germany.

Deliverable (e): Full day workshop

The Workshop topic was "Enhancing the Environment, Health and Safety (EHS) of the WEEE Recycling Industry in Hong Kong"

Morning session of workshop was held on 26 February 2016 from 9:00am – 12:30pm at M1603, 16/F, Li Ka Shing Tower, The Hong Kong Polytechnic University. The first speaker was Prof. Hyunsoo Kim (Professor, Department of Industrial & Management Engineering, Kyonggi University) and his topic was Environmental Aspects for Green Logistics in WEEE Collection in Korea. The second speaker was Mr Peter Heßler (Managing Director of Umwelt-und Recyclingtechnik GmbH (URT)) and his topic was Technology and their practical implementation to help SME WEEE recyclers meeting EHS requirements.

Deliverable (f): e-book

An e-book was compiled to provide a set of good practice guidance to the WEEE recycling industry in Hong Kong. The contents include the EHS good practice adopted in Korea and Germany on collection, recycling, storage and basic treatment of disposed E-waste. The results of the Gap Analysis are also presented and the feasible guidelines for implementing good EHS practices in Hong Kong WEEE Recycling Industry are illustrated. The e-book has been put onto the website of HKEIA and linked to website of other trade associations where appropriate.

Milestones (in chronological order)

(# Please indicate if the milestone is completed (C), deferred (D) or not achieved (N). If it is deferred, please indicate the revised completion date. For those milestones which are deferred or not achieved, please also provide the reasons under item 2.4.)

<u>Milestone</u> (as set out in the approved project proposal appended to the project agreement)	<u>Original target completion date</u>	<u>Revised completion date</u> (if applicable)	<u>Status</u> (C/D/N) #
(a) Basic survey on status quo of local recycling industry	7/12/2014	N/A	(C)
(b) Video production on handling WEEE with EHS in Korea	15/2/2015	N/A	(C)
(c) Kickoff Seminar on Enhancing the Environment, Health and Safety (EHS)	31/3/2015	N/A	(C)
(d) Overseas study to Germany	15/6/2015	N/A	(C)
(e) Video production on Handling WEEE with EHS in Germany			
(f) 2nd Seminar	31/7/2015	N/A	(C)
(g) 3rd Seminar	15/9/2015	N/A	(C)
(h) 4th Seminar	31/10/2015	N/A	(C)
(i) Gap Analysis	15/12/2015	N/A	(C)
(j) Workshop	31/1/2016	26/2/2016	(C)
(k) E-book of best practices for recycling	19/5/2016	N/A	(C)

Future Plan for Promoting the Project Deliverables (Nil if not applicable)
