出國報告(出國類別:出席國際會議)

# 出席「巴塞爾公約第9次開放式工作組會議」

服務機關:行政院環境保護署

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派赴國家:瑞士

出國期間:103年9月13日至9月21日

報告日期:103年12月10日

## 摘要

巴塞爾公約於今(2014)年9月16至9月19瑞士日內瓦召開「第九次開放 式工作組會議」,透過此次會議各方溝通協調,目的係將達成共識之提案送至該公 約第12次締約國大會(將於2015年召開)。本次會議計有267名與會者,其中包 含103個國家<sup>1</sup>、9個國際政府組織代表、37個非政府組織代表等出席與會。

我國出席代表參與本次會議重點包括:(一)卡塔基納廢棄物預防宣言;(二) 舊廢電子廢棄物越境轉移技術指引—區隔廢棄物及非廢棄物(草案);(三)國家 報告;(四)法律用語明確性;(五)2016至2017年工作計畫等。

本次與會除參與開放式工作組會議外,並參與周邊會議活動,同時亦透過大 會提供之機會,與各國代表針對廢棄物輸出入管理政策、電子廢棄物認定與管理 等議題進行交流,以維繫及建立長期互動關係,並適時分享我國廢棄物管理經驗。

<sup>&</sup>lt;sup>1</sup> IISD, Earth Negotiations Bulletin Vol. 20 No. 38, 2014.09.22, http://www.iisd.ca/basel/oewg9/

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## 壹、目的

我國參與廢棄物相關國際會議,係滿足國內廢棄物管理長期需求為目的,除 能獲取國外最新法規與執行架構等資料外,長久下來更能建立長期國際人脈,並 透過國際人脈獲取更細膩資訊以進行深度研析,並藉此以增進並進一步宣揚國內 廢棄物管理成效。因我國參與巴塞爾公約已持續十餘年,該公約作為國際廢棄物 相關議題最大的交流平台之一,透過持續參與該公約會議活動,以同步掌握全球 廢棄物管理動向,並兼顧國內廢棄物處理需求暨符合國際及各國規範。

配合公約進展及國內需求,本次第 9 次開放式工作組會議(Open-Ended Working Group 9, OEWG9)與會關切議題如下:

- 一、 卡塔基納廢棄物預防宣言<sup>2</sup> (the Cartagena Declaration on the Prevention, Minimization and Recovery of Hazardous Wastes and Other Wastes)
- 二、 舊廢電子物品越境轉移技術指引草案—區隔廢棄物及非廢棄物³ (Technical guidelines on transboundary movements of electronic and electrical waste and used electrical and electronic equipment, in particular regarding the distinction between waste and non-waste under the Basel Convention)
- 三、 國家報告<sup>4</sup> (National Report)
- 四、 法律用語明確性<sup>5</sup> (legal clarity)
- 五、 2016 至 2017 年工作計畫<sup>6</sup> (Work programme for 2016–2017)

<sup>&</sup>lt;sup>2</sup> UNEP/CHW/OEWG.9/3, UNEP/CHW/OEWG.9/CRP.7, UNEP/CHW/OEWG.9/L.1 Road map for action on the implementation of the Cartagena Declaration

<sup>&</sup>lt;sup>3</sup> UNEP/CHW/OEWG.9/CRP.8,11, UNEP/CHW/OEWG.9/L.1

<sup>&</sup>lt;sup>4</sup> UNEP/CHW/OEWG. 9/7, UNEP/CHW/OEWG.9/ INF/15,26, UNEP/CHW/OEWG.9/CRP.4,5 , UNEP/CHW/OEWG.9/L.1

<sup>&</sup>lt;sup>5</sup> UNEP/CHW/OEWG.9/11, UNEP/CHW/OEWG.9/INF/20, 21, UNEP/CHW/OEWG.9/CRP.12, UNEP/CHW/OEWG.9/L.1

<sup>6</sup> UNEP/CHW/OEWG.9/14

## 貳、過程

## 一、公約簡介

為調和廢棄物跨國運送衍生的環保紛爭與避免健康危害問題,在聯合國的推動下,成立「控制有害廢棄物越境轉移及其處置巴塞爾公約(Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal,以下簡稱巴塞爾公約)」,並於 1992 年 5 月 5 日正式生效,截至 2014 年 9 月為止,全球計有 181 個國家及組織(含歐盟)簽署。

巴塞爾公約成立目的,為透過管制特定廢棄物輸出入,減少有害廢棄物的越境轉移問題,進而藉由環境無害化管理方式,減少或避免廢棄物衍生的環境問題。 其具體落實方式,係透過(一)訂定規範:包括執行、技術指引及法律文件;(二)廢棄物輸出入前之通報機制;(三)14個巴塞爾公約區域及協調中心進行資訊交流及教育訓練。

巴塞爾公約自 2002 年起,順應世界潮流暨因應財務缺口,逐步進行三項重大調整:

- (一) 議題轉變:2004 年第 7 次締約國大會(COP7)受到 OECD 環保規範和歐盟電子電機環保三指令(RoHS、WEEE、EuP)的影響,引進生命週期思維,逐漸擴大至前端延伸生產者責任(EPR)等源頭管理議題;並於2011年第 10 次締約國大會(COP10)通過 2012-2021 新十年策略架構,納入永續物料管理(Sustainable Material Management, SMM),酌情將廢棄物視為資源,普遍被視為影響廢棄物認定上的巨大改變。
- (二) 擴大參與對象:配合 2002 年永續發展世界高峰會議的要求,公約除締約國代表、全球 14 個區域中心和國際性環保團體參與外,自 2002 年以來更是積極推動公私部門合作夥伴關係(Public-Private Partnership),包含手機設備夥伴計畫(MPPI)與電腦設備夥伴計畫(PACE)等,以增加民間企業及非政府組織的實質參與。
- (三) 各國際公約間資源整合:為配合撙節經費暨加強公約間資訊交流,2013 年由巴塞爾公約第11次締約國大會(COP11)、鹿特丹公約第6次締約國

大會及斯德哥爾摩公約第 6 次締約國大會首度接續 (back to back) 召開,會議名稱為「2013 巴塞爾、鹿特丹及斯德哥爾摩公約同期特別會議 (Ordinary and simultaneous extraordinary meetings of the conferences of the parties to the Basel, Rotterdam and Stockholm conventions in 2013)」。其以化學品及廢棄物管理作為主軸,針對三個公約秘書處及聯合活動進行整合,往後皆由三公約秘書處進行各締約國資訊收集與三公約大會籌辦。

## 二、行前準備

本次 OEWG9 會議期間為 2014 年 9 月 15 日至 9 月 19 日,本團團員配合會議期間前往(9 月 13 日至 9 月 21 日),著重在巴塞爾公約會議與周邊會議參與,與會成員、與會行程及行前準備摘要如后,協助與會工作流程如圖 1。

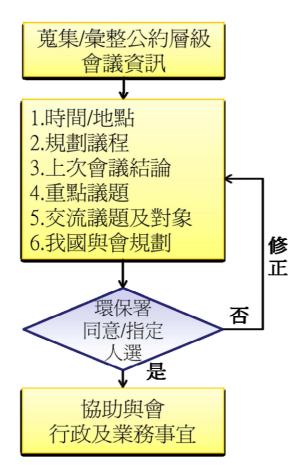


圖 1 協助參與 OEWG9 工作流程

## **(一) 與會成員:**如表 1。

表 1 與會成員

姓名	單位/職稱	任務分工
江偉立	環保署廢棄物管理處技正	團長、政策指示
邱文琳	(財)環境資源研究發展基金會研究員	國際交流、永續物料管理 相關議題諮詢
曹美慧	(財)環境資源研究發展基金會副研究員	國際交流、電子廢棄物輸 出入管理相關議題諮詢

## (二) **與會行程**:如表 2。

表 2 與會行程 (9月15日-19日)

日期	地點	內容
09月13日(六)	台北→法蘭克福	啟程
09月14日(日)	法蘭克福→日內瓦	抵達
09月15日(一)09月19日(五)	日內瓦國際會議中心(CICG)	與會準備及 參與
09月20日(六)09月21日(日)	日內瓦→法蘭克福→台北	返程、抵台

## (三) 行前準備

1. **取得專業資訊:**至巴塞爾公約網站下載會議文件,以掌握本次會議重點 及我國關切議題之主導國及官員。

#### 2. 國際廢棄物管理交流

- (1) 搭配會議議題及規劃請教議題,彙整國內電子廢棄物輸出入管理及永續物料管理相關資訊。
- (2) 藉由問題討論,說明國內現況及問題,同時請教該國做法及對策。
- 3. 國際人脈維繫 (Networking):透過大會及周邊會議等各式會議活動參

與,以維繫國際人脈。

**4. 行政協助**:包括會議議程、會議文件、駐外單位聯絡電話、班機時間彙整、住宿安排、瑞士及日內瓦簡介及建議攜帶物品,並製作成出國手冊如圖 2。



圖 2 本次會議出國手冊封面與目錄

## 三、巴塞爾公約第9次開放式工作組會議議程7

- (一) 會議開幕
- (二) 通過議程

<sup>&</sup>lt;sup>7</sup> 資料來源:會議文件 UNEP/CHW/OEWG.9/1。

#### (三) 2014-2015 年工作計畫

- 1. 策略議題
  - (1) 策略架構
  - (2) 預防、減量及再利用有害廢棄物卡塔基納宣言
  - (3) 發展環境無害管理指引
- 2. 科技和技術議題
  - (1) 技術指引: 持久性有機污染物、含汞廢棄物、電子廢棄物
  - (2) 國家報告
  - (3) 巴塞爾公約附件修正
  - (4) 廢棄物分類及有害特性
- 3. 法律及執行事項:
  - (1) 國際合作及協調
  - (2) 巴塞爾公約夥伴計畫
  - (3) 提供法律釐清
  - (4) 巴塞爾公約執行及遵約
- (四) 2016-2017 年工作計畫
- (五) 其他事項
- (六) 通過會議報告
- (七) 會議閉幕

## 四、出席狀況

本次會議計有 103 個國家<sup>8</sup>、9 個國際政府組織代表、37 個非政府組織代表等, 共計 267 名與會者,包含締約國(Parties to the Convention,含歐盟)、非締約國(States

<sup>&</sup>lt;sup>8</sup> 資料來源:IISD, Earth Negotiations Bulletin Vol. 20 No. 38, 2014.09.22, http://www.iisd.ca/basel/oewg9/。

not party to the Convention,如美國)、聯合國架構下的組織(Observers from the United Nations bodies)如國際勞工組織(ILO)、非政府組織/民間組織,及其他(non-governmental organizations, private-sector organizations and others)如財團法人環境資源研究發展基金會、巴塞爾公約區域中心(Basel Convention regional centres)等共同與會9。我國與會代表出席如圖 3 所示。



圖 3 我國與會代表出席第 9 次開放式工作組會議情形

## 五、會議實錄

## (一) 會議進行方式

本次會議每日分為二個時段召開,分別為  $10:00 \times 13:00$  以及  $15:00 \times 18:00$ ,本次會議議程如下表 3.9 月 15 日先行召開期間工作組會議 (Meetings

<sup>&</sup>lt;sup>9</sup> 本報告完成時巴塞爾公約第 11 次締約國大會正式會議記錄尚未公布,出席狀況相關數據為 IISD 初估、提供。

of intersessional working groups)與區域協調會議(Regional meetings),大會(plenary)主要議題討論集中在9月16日與9月19日,其主要功能為宣布最新進度及確認各議題之磋商內容;而各議題細節內容之磋商小組會議(contact groups)則多集中在9月17-18日白天與晚上時段。並於中午及晚間期間召開周邊會議(side event),當不同會議時間重疊時,與會者多視其任務進行調整。周邊會議議程如下表4。

## (二) 書面資料

為節省資源,本次會議採無紙化會議,臨時新增文件則統一放置於會議專網以利下載。

表 3 OEWG9 會議議程表 10

時間	09/15			09/16	09/17	09/18	(	09/19
10:00	期間	1.	會請	· 養開幕	磋商	磋商	考量包	2含決定草
-	工作組	2.	通並	<b>過議程</b>	小組	小組	案在內	的磋商小
13:00	會議		(1)	議程採納	會議	會議	組會議	結果
	(9:00-		(2)	組織工作			1. 國際	祭合作及協
	15:00)	3.	策略	<b>Š議題</b>			調	
			(1)	策略框架			(1)	巴塞爾公
			(2)	卡塔基納廢棄物				約夥伴計
				預防宣言				畫
			(3)	環境無害管理發			(2)	船舶環境
				展指引				無害拆解
			(4)	開放式工作組運			(3)	其他國際
				作選項				合作與協
		4.	科技	技和技術議題				調

<sup>10</sup> 資料來源:會議文件 UNEP/CHW/OEWG.9/INF/2/Rev.1。

時間	09/15		09/16	09/17	09/18		09/19
		(1)	持久有機污染物			2.	財政事務
			環境無害管理技			3.	2016-2017
			術指引				年工作計畫
		(2)	含汞廢棄物環境				
			無害管理技術指				
			引				
15:00	區域	1. 科技	支和技術議題(續)	磋商	磋商	1.	其他事務
-	協調	(1)	廢電器電子設備	小組	小組	2.	通過會議報告
18:00	會議		越境轉移技術指	會議	會議	3.	會議閉幕
			引(特別包含廢棄				
			物/非廢棄物定				
			義)				
		(2)	國家報告				
		(3)	公約附件修訂				
		(4)	廢棄物分類與危				
			險特性				
		2. 法律	<b>建</b> 及執行事項				
		(1)	諮詢委員會的管				
			理機制促進公約				
			的實施與合規				
		(2)	提供了進一步的				
			法律明確性				
18:00		磋商小	組會議	磋商	磋商		
之後				小組	小組		
				會議	會議		

表 4 周邊會議議程

	9/16(二)	9/17(三)	9/18(四)
Lunch time 13:15 – 14:45	電腦設備夥伴計畫周邊會議 Event 1: PACE side event Room 3	電子廢棄物回收利用技術專利概況 Event 1: Patent landscape of e-waste recycling technologies Room 3 在高科技產業全球電子產品維修實踐 Event 2: Global Electronic Product Repair Practices in the High Tech Sector	進階的環境無害管理領域:3個環境無害管理先導計畫及其衝擊Event 1: Advancing ESM in the field: 3 ESM Pilot Projects and their impacts Room 3 永續回收工業計畫Event 2: The Sustainable Recycling Industries (SRI) Programme Room 18
Evening 18:15 – 19:45	歡迎晚會 Reception hosted by Switzerland	ENFORCE <sup>11</sup> 成員非正式會 議 Informal meeting of the ENFORCE members Room 15	巴塞爾公約區域中心監督 委員會-阿根廷 Steering Committee of BCRC-Argentina Room 15

 $<sup>^{11}</sup>$  ENFORCE 全文為:The Environmental Network for Optimizing Regulatory Compliance on Illegal Traffic  $^{\circ}$ 

## (三) 會議情形

本次會議情形,如開幕、歡迎晚會、磋商小組會議、閉幕、海報、文宣及 影片展示情形,如圖 4 至圖 8。



圖 4 公約秘書處與共同主席 Magda Gosk 與 Prakash Kowlesser<sup>12</sup>



圖 5 會議開幕當天現場13

<sup>12</sup> 圖片資料來源:IISD, Earth Negotiations Bulletin Vol. 20 No. 38, 2014.09.22, <a href="http://www.iisd.ca/basel/oewg9/">http://www.iisd.ca/basel/oewg9/</a>。

<sup>13</sup> 圖片資料來源:IISD, Earth Negotiations Bulletin Vol. 20 No. 38, 2014.09.22, http://www.iisd.ca/basel/oewg9/。



圖 6 OEWG9 歡迎晚會



圖 7 針對技術事項之磋商小組會議討論情形14

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<sup>&</sup>lt;sup>14</sup> 圖片資料來源: IISD, Earth Negotiations Bulletin Vol. 20 No. 38, 2014.09.22, <a href="http://www.iisd.ca/basel/oewg9/">http://www.iisd.ca/basel/oewg9/</a>。



圖 8 OEWG9 會議現場周圍海報、影片與文宣展示

## 六、內容摘要

本次大會主要討論事項:卡塔基納廢棄物預防宣言、舊廢電子廢棄物越境轉移技術指引—區隔廢棄物及非廢棄物(草案)、國家報告、法律用語明確性及 2016至 2017 年工作計畫等內容說明如后。

## (一) 卡塔基納廢棄物預防宣言

於 2011 年 10 月 17 日至 21 日在哥倫比亞卡塔基納召開的巴塞爾第十次締約國大會(COP10),通過了「卡塔基納廢棄物預防宣言」,其宗旨重申了巴塞爾公約的核心理念,即考量環境、社會、技術及經濟方面因素,採取適當措施減少有害廢棄物及其他廢棄物的越境轉移,防止與減少其產生,並需促進技術轉讓,以實現環境無害管理(Environmental Sound Management, ESM)。

而在巴塞爾公約第 11 次締約國大會(COP11)之第 BC-11/19 號決議中, 通過開放式工作組會議 2014-2015 年工作計畫,當中即包括一項關於「卡塔基納宣言」的議題,因此開放式工作組會議據該決議編制一份執行該宣言之行動 路線圖(Road Map for Action),並於本次會議(OEWG9)確立了該行動路線圖 之草案如下表 5。

該行動路線圖草案內容包括資訊收集、制訂各項策略、加強預防廢棄物及相關利害關係人參與等行動面向,發展先導計畫(Pilot Project)與知識和技術轉讓亦包含於其中。而本次會議確立資訊收集、制訂各項策略的時程安排,其餘面向之時程則在將持續進行,並預計在巴塞爾公約第 12 次締約國大會(COP12)提出並通過。

表 5 執行「卡塔基納宣言」之行動路線圖(草案) 15

行動面向	各項活動	行動責任方	時程安排
資訊收集	1. 向秘書處提交執行《卡塔基納宣言》的經驗,比如防止和儘量減少廢棄物以及評估進展情況的策略或方案;技術轉讓和能力建設方面的資料。16	締約國、簽字 國及其他各方 秘書處	締約國大會第 十二屆會議上 發出提交資訊 的請求(決 議),將持續提 供資訊至締約 國大會第十三 屆會議之前
	基納宣言》執行情況的所有相關資料 進行彙編,並將彙編後的材料發佈在 《巴塞爾公約》網站上	<b>10</b> 11 10 11 11 11 11 11 11 11 11 11 11 11	締約國大會第 十三屆會議之 前
制定各項 策略 (「卡塔 基納宣 言」第1 段)	編寫指導意見,以酌情協助締約國制 定高效策略,以期實現防止和儘量減 少危險廢棄物及其他廢棄物的產生 並對其加以處置 ,同時考慮到環境 無害管理問題專家工作組編寫的預 防手冊	各締約國和環境無害管理問題專家工作組 /閉會期間工作組作組	締約國大會第 十三屆會議
加強廢棄物預防 (「卡塔基納宣	鼓勵: - 針對引起關切的特定廢棄物流制 定協同增效的國家和區域廢棄物 預防先導計畫;	各締約國、巴 塞爾公約各區 域和協調中 心、斯德哥爾 摩公約各區域	持續進行

UNEP/CHW/OEWG.9/3, UNEP/CHW/OEWG.9/CRP.7, UNEP/CHW/OEWG.9/L.1 Road map for action on the implementation of the Cartagena Declaration

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<sup>&</sup>lt;sup>16</sup> 參見《卡塔基納宣言》第 1、4、5、7 和 11 段。

行動面向	各項活動	行動責任方	時程安排
言」第5、 7、8、12 和13段)	<ul> <li>改善獲取各類清潔生產方法的管道以及獲取關於有害化學品及有害程度較低之替代品材料資訊的管道;</li> <li>開展廢棄物預防方面的提高認識活動,包括提供有關廢棄物預防技術的資訊</li> </ul>	和心織金中門 各塞域心摩和以織次、、、、心 約公協斯約區非 國約調德各域政中組基 產部 巴區 爾域心組	
相關利害關係人參與 (「卡塔」 基納」第11段)	酌情鼓勵和促進與其他機構、非政府 組織、清潔生產中心和私營部門接 洽,以推動防止、儘量減少和回收危 險廢棄物及其他廢棄物的相關工 作,並為此制定和實施項目、廢棄物 預防方案和夥伴關係,同時考慮到來 自資訊收集活動的彙編資料。	各締約國、巴 塞爾公約各區 域和協調中心 及斯德哥爾摩 公約各區域和 次區域中心	持續進行

## (二) 舊廢電子物品越境轉移技術指引草案—區隔廢棄物及非廢棄物17

依據巴塞爾公約第 11 次締約國大會(COP11)第 BC-11/4 號決議,應按照公約第 10 次締約國大會第 BC-10/5 號決議設立之小型閉會期間工作組,持續制訂與修訂舊廢電子物品越境轉移技術指引草案,尤其是區隔廢棄物與非廢棄物的在法律上認定部分,進行意見蒐集與討論。

但針對該草案第 26(b) 段「舊廢電子物品未經檢測或檢測後,仍無法得知該物品可否直接再利用時,是否設立例外情況排除認定為廢棄物」之情況,各締約國代表看法仍存在著極大的分歧。主因仍在於:如將未經檢測或檢測後仍

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<sup>&</sup>lt;sup>17</sup> UNEP/CHW/OEWG.9/CRP.8,11, UNEP/CHW/OEWG.9/L.1

無法得知可否直接再利用之舊廢電子物品認定為廢棄物,將影響電子業者在電子產品跨國運送維修之運作模式與意願,間接提高電子產品直接廢棄可能性。

因此在本次會議(OEWG9)上,對於該草案第 26(b) 段爭議內容持續討論,希望達成一致共識。但非洲締約國代表提供意見,目前屬於非洲區域層級的「禁止向非洲輸入有害廢棄物並管制非洲區域內越境轉移與管理的巴馬科公約 (the Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa),簡稱巴馬科公約」,已決議未經檢測與非功能性電子物品屬於廢棄物,建議巴塞爾公約採用該公約之看法;日本代表則指出,日本目前已制訂並開始實施特定舊廢電子物品為二手出口商品的標準,建議其他締約國應當採取相同行動。

另有締約國集團代表表示,應在本次會議放棄對該草案第 26(b) 段的討論,且不應試圖達成一致意見,相反的,應當就國家層級裡靈活應用一般原則以達成一致。而一般原則可在巴塞爾公約第 12 次締約國大會(COP12)上予以通過,以確保該份技術指引草案能按照時程完成並通過。

亦有締約國代表表示,該份技術指引草案通過是不可或缺的,但是目前草 案內容仍未完善,無法解決有關電子廢棄物的所有法律不確定問題,因此建議 可從用途目的來思考,締約國應致力將用於維修、翻新用途之電子物品納入公 約附件二非屬公約管制之廢棄物,而非僅是認定為非廢棄物。

經本次會議(OEWG9)討論後,開放式工作組決定規劃下列兩個選擇方案以利運作:

- 1. 在巴塞爾公約第 12 次締約國大會(COP 12)前有共識則通過;或是
- 2. 未在巴塞爾公約第 12 次締約國大會(COP 12)時有共識,則將已商訂 之版本納為臨時解決方案

#### (三) 國家報告18

依據巴塞爾公約第 13 條之要求,各締約國對於該條所載事項所作成之國家報告具提報義務。但對開發中國家提報上述所載事項,受限於該國之國家能力,提交相關資料具一定的難度。

<sup>&</sup>lt;sup>18</sup> UNEP/CHW/OEWG. 9/7, UNEP/CHW/OEWG.9/ INF/15,26, UNEP/CHW/OEWG.9/CRP.4,5 , UNEP/CHW/OEWG.9/L.1

因此針對此問題,依據巴塞爾公約第 11 次締約國大會(COP11)作成之 BC-11/7 號決議,設立小型閉會期間工作組進行國家報告格式的修訂工作。修訂 的目的,旨在增刪、簡化各締約國提交之國家報告格式,以提高報告格式清晰度,同時減輕因該份報告帶給開發中國家在提報義務上之沈重負擔,進而增加 國家報告之提交數量。

本次會議(OEWG9)持續由各締約國提供意見與磋商,部分締約國代表表示希望在下次締約國大會(COP12)上採用新格式。另會議中亦有部分締約國代表,對擬議新增有害廢棄物非法運送案例的表格表示歡迎。

#### (四) 法律用語明確性19

巴塞爾公約於第 11 次締約國大會(COP11)中,針對第 8 次開放式工作組會議(OEWG8)提出之廢棄物/非廢棄物(waste/non-waste)、有害廢棄物/非有害廢棄物(hazardous waste/non-hazardous waste)、再使用(re-use)、直接再使用(direct re-use)、修復(refurbishment)、二手物品(second-hand goods)及使用過物品(used goods)等相關用語之定義與解釋,持續對特定專有名詞詞彙編草案(Draft glossary of terms)<sup>20</sup>進行討論,並作出 BC-11/1 號決議。

而在 COP11 之後,依據上述決議,以現有可得資源範圍內設立一個小型閉會期間工作組,並邀請各締約國提名專家,參與該閉會期間工作組之特定專有名詞彙編修訂版之修訂工作,並送交本次會議(OEWG9)進行審議。如必要時,酌情與環境無害管理專家小組進行詞彙定義與解釋之協調工作。

本次會議(OEWG9)審議結果,於 2014 年 10 月 15 日前持續邀請各締約國提名專家參與該閉會期間工作組進行修訂工作,並同時檢視已通過的各項技術準則、指導文件及環境無害管理架構中,是否有任何具關連性用語需進行更新,以維持用語明確性與一致性,並預計將該修訂版草案提交至巴塞爾公約第12 次締約國大會(COP12)審議通過。

## (五) 2016-2017 年工作計畫21

公約秘書處編寫 2016-2017 年工作計畫草案,提供本次會議進行審議,並

<sup>&</sup>lt;sup>19</sup> UNEP/CHW/OEWG.9/11, UNEP/CHW/OEWG.9/INF/20, 21, UNEP/CHW/OEWG.9/CRP.12, UNEP/CHW/OEWG.9/L.1

<sup>&</sup>lt;sup>20</sup> UNEP/CHW.11/3/Add.2

<sup>&</sup>lt;sup>21</sup> UNEP/CHW/OEWG.9/14

預計於巴塞爾公約第 12 次締約國大會上通過。該工作計畫草案內容包含策略性、技術事項、法律與管理執行、國際合作與協調及財政預算等議題,未來持續推動重點包括卡塔基納宣言、發展環境無害管理技術準則、持久性有機污染物技術準則、廢棄物分類與危險定性、電腦設備夥伴計畫等,各項目優先程度如下表 6。

表 6 開放式工作組 2016-2017 工作計畫(草案)

議題	活動	職責範圍22	優先程度
一、戰略性議題			
A. 策略架構	審議秘書處提交的策略架構初步 中期評估報告。	第BC-11/2號決定	高度
B. 關於防止、 儘量減少和回 收危險廢棄物 及其他廢棄物 的「卡塔基納 宣言」	審查各締約國在執行「卡塔基納 宣言」方面所取得的進展及開發 的行動路線圖。	第 10 次締約國大 會會議報告的附 件四 第 8 次開放式工 作組會議報告第 109 段	高度
C. 開發環境無 害管理技術準 則	審議環境無害管理專家工作組的工作計畫和活動報告。	第 BC-11/1 號決定	高度
二、科學與技術	事項		
A. 技術準則	1·(a) 更新關於對由持久性有機 污染物構成、含有此類污染物或 受其污染的廢棄物實行環境無害 管理的一般性技術準則,根據斯 德哥爾摩公約締約國大會第 SC-4/10 至 SC-4/18, SC-5/3 和 SC-6/13 號決定,編制或更新關於 《斯德哥爾摩公約》附件 A、B 和 C 所列化學品清單的具體技術準 則,包括以下內容: • 為化學品設定必要的銷毀和 永久質變水準,以確保化學品接 受處置時不會呈現《斯德哥爾摩 公約》附件 D 第 1 段明確指出的 持久性有機污染物特徵; • 確定哪些處置方法屬於《斯德	第 BC-11/3 號決定	高度

<sup>22</sup> 在適用的情況下,將在第十二次締約國大會上添加締約國大會的相關決定。

議題	活動	職責範圍22	優先程度		
	哥爾摩公約》第 6 條第 1 款(d)項				
	(二)所提及的環境無害處置方				
	法;				
	● 酌情確定化學品的濃度水				
	準,以便界定《斯德哥爾摩公約》				
	第 6 條第 1 款(d)項(二)所提及				
	的低持久性有機污染物含量值;				
	(b) 審議下列文件中與廢棄				
	物有關的內容:《斯德哥爾摩公				
	約》中載列的全氟辛烷磺酸及相				
	關化學品的庫存指導檔草案				
	(2012 年)、《斯德哥爾摩公約》				
	中載列的多溴聯苯醚的庫存指南				
	草案(2012年)、《斯德哥爾摩公				
	約》中載列的全氟辛烷磺酸及相				
	關化學品的最佳可得技術和最佳				
	環保做法指南草案(2012年),以				
	及《斯德哥爾摩公約》中載列的				
	含有多溴聯苯醚的物質的迴圈利				
	用及廢棄物處置的最佳可得技術				
	和最佳環保做法指南草案(2012				
	年)。	た D C 11/5 「E \上 户			
	2. 關於對由元素汞構成的、以及	第BC-11/5號決定	高度		
	含有汞或受汞污染的廢棄物實行				
D W / 田東西	環境管理的技術準則。	<b>答 VIII /1 5</b> 時 / + <i>广</i>	一一一		
B. 對《巴塞爾	1. 審議並審查改動《公約》附件	第 VIII/15 號決定	高度		
公約》各項附	八和附件九所載廢棄物清單的所				
件的修正	有申請、以及對《公約》附件八				
	和附件九所載廢棄物清單做出的				
	所有更正。	第 BC-11/3 號決定	<del>山</del> 麻		
	2. 在制定用於確定最低濃度的合適框架後,審議修正附件八中有		中度		
	獨性宗後,番識修正的什八中有   關多氯二苯並呋喃和多氯二苯並				
	對戴奧辛 (第 A4110 條)、DDT 及其他相關持久性有機污染物的				
	及其他相關持久性有機乃架初的   條目,以納入這些化學品的濃度				
	除日,以納八垣登化字而的晨度   水準。				
C. 廢棄物的分	水準。   就確定世界海關組織"商品名稱及	第 BC-10/10 號決	中度		
類和危險定性	編碼協調制度"中的廢棄物問題及				
	相關事項提供指導。				
二、法律、管理		<u> </u>			
三、法律、管理以及強制執行問題					

議題	活動	職責範圍22	優先程度
A. 與負責促進	與委員會就委員會 2016-2017 年	第BC-11/8號決定	高度
《公約》履約	工作方案的下述活動進行磋商:		
和遵約機制行	(待完成)		
政管理的委員			
會進行磋商			
B·從法律上作	考慮閉會間小型工作組關於法律	第BC-11/1號決定	高度
出進一步的澄	澄清的報告,並基於此報告和討		
清(國家引導)	論結果向締約國大會第十三次會		
	議提交建議進行審議並酌情通		
	過。		
四、國際合作與	協調		
A. 巴塞爾公約	考慮包括相關建議在內的電腦設備	第 BC-11/15 號決	高度
夥伴關係方案	行動夥伴關係報告,並基於此報告和	定	
	討論結果向締約國大會第十三次會		
	議提交建議進行審議並酌情通過。		
B. 以無害環境	考慮秘書處就可持續船舶回收利用	第 BC-11/16 號決	中度
的方式拆解船	方案、以及就《香港國際安全與無害	定	
舶	環境拆船公約》的相關動態的報告。		
五、工作方案與			
2014-2015兩年	考慮秘書處提交的關於所有收入	第 BC-11/26 號決	中度
期財政和預算	來源的報告,包括儲備金、資金	定	
	餘額和利息,實際的、臨時的和		
	預計支出款項和承付款項,以及		
	執行秘書提交的對照商定預算專		
	案的所有支出情況報告。		

## 七、周邊會議

本次與會團員分工分別參與周邊會議(如圖 9、10),會議主題包括:電腦設備夥伴計畫周邊會議、電子廢棄物回收利用技術專利大觀、在高科技產業全球電子產品維修實踐、3個環境無害管理先導計畫及其衝擊,以及永續回收工業計畫,會議重點彙整如下表 7。

## 表7 OEWG 9 周邊會議重點

	周邊會議				
日期	會議主題	主辦單位	重點		
9/16	電腦設備 夥伴計畫 周邊會議 PACE side event	電腦設備夥伴計畫	■ 先導計畫(Pilot project) 進程報告 布吉納法索先導計畫(Burkina Faso Pilot project)  1. 提供該國環保部門因應電子廢棄物 對策  2. 由貴金屬(黃金,鉑金等)的回收的籌資機制用於資助基礎設施投資,薪金及出口貨櫃及設備租賃  ■ 塞爾維亞先導計畫(Serbia Pilot projects)  1. 法律部分  2. 發展永續且可獲利的電子廢棄物收集與回收模式  3. 建立區域電子廢棄物處理設施提案  4. 建立電子廢棄物管理之獨立監測與控制實體  5. 透過網站公示與教育  ■ 2014-2015 新工作計畫  1. 確認行動與獎勵機制可提升環境無害管理  2. 透過使用現有設施的驗證為手段,以確保環境無害管理  3. 草擬提升舊廢電腦設備環境無害管理之策略、行動及獎勵報告		
9/17	在高科技產業全 球電子產品維修 案例 Global Electronic Product Repair Practices in the High Tech Sector	資訊科技 工業協會 (Information Technology Industry Council)	■ 資訊科技工業協會代表 摘要說明產品需要修復再使用的各種狀 況及理由,而實務上產品持有人決定丟 棄或維修的關鍵為修復費用。 CISCO 代表彙整該公司歷年資訊可知: (1)主流為整個產品的維修,零件維修僅 占少數。(2)99%取得產品得以再使用或 再利用,僅有 1%必須廢棄送至掩埋場。 ■ IBM 代表 依據 Digital Europe 研析報告可知,每天 約 100,000 產品需要測試或維修,80%送 至 OECD 國家、10%非 OECD 國家、10% 從 OECD 國家送至南亞國家及中國。		
9/18	進階的環境無害	巴塞爾公約	■ 使用過鉛蓄電池研究報告		

	周邊會議					
日期	會議主題	主辦單位	重點			
	管理領域:3個環境無害管理先導計畫及其衝擊 Advancing ESM in the field:3 ESM Pilot Projects and their impacts	中美洲與 墨西哥 區域中心、 中國區域中心 及三公約秘書 處 BCRC CAM, BCRC China & BRS	<ol> <li>浙江為中國製造廠集中區,故規劃以 此推動為環境無害管理之示範點</li> <li>其透過環境部及工業部兩方面檢 視,期能降低20%鉛使用量</li> <li>中國區域中心2014年研究計畫</li> <li>三公約秘書處非法運送管理</li> </ol>			
9/18	永續再利用 產業計畫 The Sustainable Recycling Industries (SRI) Programme	瑞士	■ 計畫背景開發中國家需要資源很多,而二次料多來自於非編制內部門 (informal sector),造成環境污染及勞工安全等問題,故研議「永續再利用產業計畫」,期透過開發中國家再利用產業的中小企業整合以促使二次料入續利用。合作模式主要的多數學學學學學學學學學學學學學學學學學學學學學學學學學學學學學學學學學學學學			



圖 9 PACE 周邊會議現場



圖 10 周邊會議參與情形<sup>23</sup>

<sup>&</sup>lt;sup>23</sup> 照片來源:<u>http://www.iisd.ca/basel/oewg9/19sep.html</u>。

## 八、與會交流

本次與會針對電子廢棄物有害分類方式、有害廢棄物未先通報,但已抵達過 境轉口國之處理方式,以及電子回收再利用業者自願性認證計畫等議題,於會場 與各締約國環境部門代表、國際環保團體及產業代表進行請益(如圖 11),重點羅 列如下表 8。



圖 11 與英國代表交流情形24

<sup>&</sup>lt;sup>24</sup> 照片來源:http://www.iisd.ca/basel/oewg9/19sep.html

表 8 OEWG9 與會交流主題與重點

主題	交流對象	重點
	及日期	
	德國環境 總局代表 09.16	■ 依據歐盟決議 2000/532/EC,可歸類於歐盟廢棄物清單編號 16 02 電器電子設備廢棄物及 20 01 都市廢棄物。 ■ 依據廢棄物越境轉移法(Regulation (EC) No 1013/2006)附件三綠色清單,可歸類於 GC010 只有金屬及合金之電子部件、GC020 電子碎片。屬印刷電路板邊料者,可歸屬於 GC020。
電子廢棄物有害分類方式	奧地利環 境部代表 09.17	■ A1180 電裝置和電子裝置或廢裝置、B1110 電器和電子裝置之區別方式,係以該廢棄物是否含有有害物質而定,例如:含有汞開關、陰極射線管的玻璃和其他具有放射性的玻璃和多氯聯苯電容器者,即屬有害廢棄物 A1180。 ■ 產品製程產生之電子廢棄物之有害與否,需視其組成成分方能判別,例如陶瓷電容器屬 PbTiO₃ 屬有害,但 ZnO 則非有害,可由製造業者所提證明佐證,後端可依政府預算抽樣確認。 ■ 整體廢棄物有害與否,尚須視其所佔重量比而有不同,例如:熱阻 (PTR)屬有害陶瓷,但其占吹風機整體比例小,雖存在於吹風機中,但吹風機非屬有害。
	瑞士環境 部代表 09.18	■ 印刷電路板之分類,其若屬於舊型,因其有鉛銲錫問題,屬於有害廢棄物;倘屬新型(RoHS 指令規範者),非屬有害廢棄物。
有害廢棄 物未先通	奧地利環 境部代表 09.17	■ 依巴塞爾公約第 6 條規定有害廢棄物越境轉移應先 通報過境轉□國取得同意後始得為之,倘廢棄物已 抵達,應予退運,因其屬非法運輸,會處分運輸者 及輸出者,惟恐無法追蹤輸出者,故會通知輸出國 主管機關。
報,但已 抵達過境 轉口國之 處理方式	瑞士環境 部代表 09.18	■ 會將有害廢棄物予以退運至輸出國,輸出者在國外 通常難以處分。運輸者則視地方主管機關權責,不 一定會處分,可能首次會予以警告,並通知輸出國 主管機關,請其留意此違法行為。
	日本智庫 單位代表 09.18	■ 依經驗,多視與輸出國主管機關協調結果來處理。
電子回收 再利用業 者自願性	國際環保 團體代表 09.19	■ 美國環保署為確保再利用者可安全地回收與處理電子廢棄物,鼓勵業者取得認證,其標準包括(1)責任 回收實踐行動(the Responsible Recycling

主題	交流對象 及日期	重點
認證計畫		Practices, R2);及(2)電子管理標準(the e-Stewards® standards)。  為提高再利用業者參與認證,主要透過與產源事業溝通,請其於廢棄物處理合約中納入相關條款,並將事業名單納入網站,提升該事業之環保形象。  目前全球約有 400 家再利用業者參與 R2 制度;162 家參與 e-Stewards 制度。
	美國產業 代表 09.19	■ 若有足夠的廠商有意願參與自願性認證,預計美國 R2 總部可免費派員說明。

## 參、心得與建議

## 一、 電子回收再利用業者認證計畫之評析

混合五金廢料過去被視為危害環境甚深的有害廢棄物,我國目前對混合五金廢料處理仍抱持謹慎態度,惟其蘊含金屬資源,被視為「城市礦山」。在國際間推廣電子廢棄物再利用機構回收及處理認證的同時,我國於混合五金廢料處理/再利用機構之管理,或可同步鼓勵其取得自願性認證,以提高處理水準,降低處理過程之環境影響,同時增加國內資源來源。

#### 二、 舊廢電子物品越境轉移技術指引草案之影響

本技術指引爭點在於未經測試(test)或檢測後功能未知之舊廢電子產品是否可排除為廢棄物。環保團體擔憂維修廠商可能假借修復之名行廢棄之實,建議需有透明追蹤系統;產業代表提出維修費用決定消費者是否願意花錢維修,或是將之廢棄;若將維修品視為廢棄物時,將造成維修意願下降,反而產生更多廢棄物。考量之指引之內容,涉及廢棄物越境轉移之管理範疇,影響我國未來舊廢電子產品之管理模式,官後續應密切關注其進展。

## 三、 國際合作機會-電子廢棄物議題

電子廢棄物議題於巴塞爾公約中屬重要焦點,各單位展開合作,例如:中國亞太區域中心及中南美區域中心(區域中心主任為薩爾瓦多代表)針對電子廢棄物、廢鉛蓄電池等項目共同辦理周邊會議(Side event),若運作順利,將於明年第12次締約國大會召開前,完成多項議題簽約合作。而我國廢棄物處理技術優良,或可規劃針對廢棄物處理需求國家,透過技術支援平台,導入制度、技術、人力資源等,形成產業鏈結,建立我國國際合作契機。

#### 四、 國際參與人員傳承及專業能力

與會代表以官員為主,近年與會過程可發現,如日本、瑞士、德國及中國 大陸等陸續進行人員接班或經驗傳承措施。此外於會議過程中發現與會代表於 每項討論議題皆有深入的研究及探討,以日本來說,參與汞技術手冊的代表就 達 6 人以上,發言代表以良好語言能力展現出專業。建議未來可由開會代表應 盡量減少更動,以利經驗傳承及專業參與。 附錄



 $\mathsf{BC}$ 

#### UNEP/CHW/OEWG.9/1/Add.1\*



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Open-ended Working Group of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal Ninth meeting Geneva, 16–19 September 2014

Item 2 (a) of the provisional agenda\*\*

Organizational matters: adoption of the agenda

#### Annotations to the provisional agenda

#### Item 1

#### Opening of the meeting

- 1. The ninth meeting of the Open-ended Working Group of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal will be held from 16 to 19 September 2014 at the Geneva International Conference Centre, 17 rue de Varembé, Geneva. The meeting will be opened at 10 a.m. on Tuesday, 16 September 2014.
- 2. Opening and welcoming statements will be delivered.

#### Item 2

#### Organizational matters

#### (a) Adoption of the agenda

3. The Open-ended Working Group may wish to adopt its agenda on the basis of the provisional agenda (UNEP/CHW/OEWG.9/1).

#### (b) Organization of work

- 4. The Open-ended Working Group will have before it a scenario note for its ninth meeting (UNEP/CHW/OEWG.9/INF/1) and a tentative schedule for the meeting (UNEP/CHW/OEWG.9/INF/2/Rev.1) prepared by the Secretariat in consultation with the co-chairs of the Open-ended Working Group.
- 5. Pursuant to paragraph 2 of decision BC-11/19, on operations and work programme of the Open-ended Working Group for 2014–2015, on Tuesday, 16 September, and Friday, 19 September, simultaneous interpretation into Arabic, Chinese, English, French, Russian and Spanish will be provided in plenary sessions. On Wednesday, 17 September, and Thursday, 18 September, contact and other group meetings will be held in English only.
- 6. The Open-ended Working Group may wish to agree to meet in plenary on Tuesday, 16 September, and Friday, 19 September, from 10 a.m. to 1 p.m. and from 3 p.m. to 6 p.m., subject to adjustments as appropriate.

<sup>\*</sup> Reissued for technical reasons on 10 September 2014.

<sup>\*\*</sup> UNEP/CHW/OEWG.9/1.

7. The Open-ended Working Group may wish to establish contact groups and drafting groups as it may deem necessary, and to specify their mandates.

#### Item 3

# Matters related to the work programme of the Open-ended Working Group for 2014–2015

8. The Open-ended Working Group will consider several sub-items under agenda item 3. The sub-items are listed below in the order in which they appear in the provisional agenda, which is not necessarily the order of priority for consideration by the Open-ended Working Group. They will be taken up as decided by the co-chairs in consultation with the Bureau.

#### (a) Strategic issues

#### (i) Strategic framework

9. The Open-ended Working Group will have before it notes by the Secretariat on progress in the implementation of the strategic framework (UNEP/CHW/OEWG.9/2) and on the report on the creation of a baseline for the midterm and final evaluations of the strategic framework (UNEP/CHW/OEWG.9/INF/3). The Open-ended Working Group may wish to take note of the information provided and to consider the action proposed in document UNEP/CHW/OEWG.9/2.

## (ii) Cartagena Declaration on the Prevention, Minimization and Recovery of Hazardous Wastes and Other Wastes

10. The Open-ended Working Group will have before it a note by the Secretariat on the follow-up to the Cartagena Declaration on the Prevention, Minimization and Recovery of Hazardous Wastes and Other Wastes (UNEP/CHW/OEWG.9/3). The Open-ended Working Group may wish to take note of the information provided in the note and consider the action proposed therein.

#### (iii) Developing guidelines for environmentally sound management

11. The Open-ended Working Group will have before it a note by the Secretariat on developing guidelines for environmentally sound management (UNEP/CHW/OEWG.9/4) and a report on the activities and the draft work programme of the expert working group on environmentally sound management (UNEP/CHW/OEWG.9/INF/4). The Open-ended Working Group may wish to take note of the information provided and to consider the action proposed in document UNEP/CHW/OEWG.9/4.

#### (iv) Options for operations of the Open-ended Working Group

12. The Open-ended Working Group will have before it a note by the Secretariat on options for the operations of the Open-ended Working Group (UNEP/CHW/OEWG.9/5) and a compilation of comments on options for operations of the Open-ended Working Group (UNEP/CHW/OEWG.9/INF/5). The Open-ended Working Group may wish to take note of the information provided and to consider the action proposed in document UNEP/CHW/OEWG.9/5.

#### (b) Scientific and technical matters

#### (i) Technical guidelines

# a. Technical guidelines for the environmentally sound management of wastes consisting of, containing or contaminated with persistent organic pollutants

13. The Open-ended Working Group will have before it notes by the Secretariat on technical guidelines (UNEP/CHW/OEWG.9/6), on revised draft general technical guidelines for the environmentally sound management of wastes consisting of, containing or contaminated with persistent organic pollutants (UNEP/CHW/OEWG.9/INF/9), on supporting document for the development of section III of the general technical guidelines for the environmentally sound management of wastes consisting of, containing or contaminated with persistent organic pollutants (UNEP/CHW/OEWG.9/INF/9/Add.1), on revised draft technical guidelines for the environmentally sound management of wastes consisting of, containing or contaminated with perfluorooctane sulfonic acid, its salts and perfluorooctanesulfonyl fluoride (UNEP/CHW/OEWG.9/INF/10), on draft technical guidelines for the environmentally sound management of wastes consisting of, containing or contaminated with hexabromodiphenyl ether, heptabromodiphenyl ether, tetrabromodiphenyl ether and pentabromodiphenyl ether (UNEP/CHW/OEWG.9/INF/11), on draft technical guidelines for the environmentally sound management of wastes consisting of, containing or contaminated with hexabromocyclododecane (UNEP/CHW/OEWG.9/INF/23), on draft technical guidelines for the environmentally sound management of wastes consisting of, containing or contaminated with

polychlorinated biphenyls, polychlorinated terphenyls or polybrominated biphenyls including hexabromobiphenyl (UNEP/CHW/OEWG.9/INF/12), on draft technical guidelines for the environmentally sound management of wastes consisting of, containing or contaminated with unintentionally produced dibenzo-p-dioxins, polychlorinated dibenzofurans, hexachlorobenzene, pentachlorobenzene or polychlorinated biphenyls (UNEP/CHW/OEWG.9/INF/13) and on the draft outcome of review work by the small intersessional working group on the waste-related aspects of certain draft guidance documents on persistent organic pollutants listed under the Stockholm Convention (UNEP/CHW/OEWG.9/INF/30). The Open-ended Working Group may wish to take note of the information provided and to consider the action proposed in document UNEP/CHW/OEWG.9/6.

# b. Technical guidelines for the environmentally sound management of wastes consisting of elemental mercury and wastes containing or contaminated with mercury

14. The Open-ended Working Group will have before it notes by the Secretariat on technical guidelines (UNEP/CHW/OEWG.9/6), and on revised draft technical guidelines for the environmentally sound management of wastes consisting of elemental mercury and wastes containing or contaminated with mercury (UNEP/CHW/OEWG.9/INF/8). The Open-ended Working Group may wish to take note of the information provided and to consider the action proposed in document UNEP/CHW/OEWG.9/6.

# c. Technical guidelines on transboundary movements of electronic and electrical waste and used electrical and electronic equipment, in particular regarding the distinction between waste and non-waste under the Basel Convention

15. The Open-ended Working Group will have before it notes by the Secretariat on technical guidelines (UNEP/CHW/OEWG.9/6), on draft technical guidelines on transboundary movements of electronic and electrical waste (e-waste), in particular regarding the distinction between waste and non-waste (UNEP/CHW/OEWG.9/INF/6), on a compilation of comments on the draft technical guidelines on transboundary movements of electronic and electrical waste and used electrical and electronic equipment, in particular regarding the distinction between waste and non-waste under the Basel Convention (UNEP/CHW/OEWG.9/INF/6/Add.1), on a non-paper on the status of discussions on the technical guidelines and probable reasons why they were not adopted by the Conference of the Parties at its eleventh meeting (UNEP/CHW/OEWG.9/INF/7) and on a report on responses to the survey on existing information gaps and needs in order to facilitate agreement on the remaining issues relating to paragraph 26 (b) of the draft technical guidelines on transboundary movements of electronic and electrical waste and used electrical and electronic equipment (UNEP/CHW/OEWG.9/INF/14). The Open-ended Working Group may wish to take note of the information provided and to consider the action proposed in document UNEP/CHW/OEWG.9/6.

#### (ii) National reporting

16. The Open-ended Working Group will have before it notes by the Secretariat on national reporting (UNEP/CHW/OEWG.9/7) and on a draft format for Basel Convention national reporting (UNEP/CHW/OEWG.9/INF/15) and a compilation of comments received from parties on revising the reporting format (UNEP/CHW/OEWG.9/INF/26). The Open-ended Working Group may wish to take note of the information provided and to consider the action proposed in document UNEP/CHW/OEWG.9/7.

#### (iii) Amendments to the annexes to the Basel Convention

17. The Open-ended Working Group will have before it notes by the Secretariat on applications for new entries to Annex IX to the Basel Convention (UNEP/CHW/OEWG.9/8), and on a compilation of comments received from parties on the applications for new entries to Annex IX to the Basel Convention (UNEP/CHW/OEWG.9/INF/25). The Open-ended Working Group may wish to take note of the information provided and to consider the action proposed in document UNEP/CHW/OEWG.9/8.

#### (iv) Classification and hazard characterization of wastes

18. The Open-ended Working Group will have before it a note by the Secretariat on classification and hazard characterization of wastes: review of cooperation with the World Customs Organization and its Harmonized System Committee (UNEP/CHW/OEWG.9/9). The Open-ended Working Group may wish to take note of the information provided in the note and consider the action proposed therein.

#### (c) Legal, governance and enforcement matters

#### (i) Consultation with the Committee for Administering the Mechanism for Promoting Implementation and Compliance of the Convention

19. The Open-ended Working Group will have before it notes by the Secretariat on consultation with the Committee for Administering the Mechanism for Promoting Implementation and Compliance of the Convention (UNEP/CHW/OEWG.9/10), on a draft methodological guide for the development of inventories of hazardous wastes and other wastes under the Basel Convention (UNEP/CHW/OEWG.9/INF/16), on draft guidance on the implementation of the Basel Convention illegal traffic take-back provision (UNEP/CHW/OEWG.9/INF/17), on a revised draft guide to the control system (instruction manual for use by those persons involved in transboundary movements of hazardous wastes) (UNEP/CHW/OEWG.9/INF/18) and on the updated manual for the implementation of the Convention (UNEP/CHW/OEWG.9/INF/19). The Open-ended Working Group may wish to take note of the information provided and to consider the action proposed in document UNEP/CHW/OEWG.9/10, including the invitation by the Committee to provide comments on the draft documents.

#### (ii) Providing further legal clarity

20. The Open-ended Working Group will have before it notes by the Secretariat on providing further legal clarity (UNEP/CHW/OEWG.9/11), on a draft glossary of terms and recommendations from the small intersessional working group on legal clarity (UNEP/CHW/OEWG.9/INF/20) and on comments from parties and others on the draft glossary of terms prepared by the small intersessional working group (UNEP/CHW/OEWG.9/INF/21). The Open-ended Working Group may wish to take note of the information provided and to consider the action proposed in document UNEP/CHW/OEWG.9/11.

#### (d) International cooperation and coordination

#### (i) Basel Convention Partnership Programme

21. The Open-ended Working Group will have before it notes by the Secretariat on the Partnership for Action on Computing Equipment (UNEP/CHW/OEWG.9/12) and on a progress report by the co-chairs of the Working Group of the Partnership for Action on Computing Equipment (UNEP/CHW/OEWG.9/INF/22). The Open-ended Working Group may wish to take note of the information provided and to consider the action proposed in document UNEP/CHW/OEWG.9/12.

#### (ii) Environmentally sound dismantling of ships

22. The Open-ended Working Group will have before it notes by the Secretariat on the environmentally sound dismantling of ships (UNEP/CHW/OEWG.9/13) and on an update on the activities being implemented under the Global Programme for Sustainable Ship Recycling (UNEP/CHW/OEWG.9/INF/24). The Open-ended Working Group may wish to take note of the information provided.

#### (iii) Other international cooperation and coordination

23. The Open-ended Working Group will have before it notes by the Secretariat on a report on international cooperation and coordination (UNEP/CHW/OEWG.9/INF/27) and on a report by the Public Waste Agency of Flanders, on behalf of Belgium, on the status and methodology for the development of an assessment of how far the Basel Convention technical guidelines cover wastes covered by the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, and as further amended by the Protocol of 1997 (MARPOL) (UNEP/CHW/OEWG.9/INF/28). The Open-ended Working Group may wish to take note of the information provided.

#### (e) Financial matters

24. The Open-ended Working Group will have before it notes by the Secretariat on information on financial matters from 1 January 2013 to 30 June 2014 (UNEP/CHW/OEWG.9/INF/29) and on a report on financial matters from January 2013 to June 2014: report on the status of implementation of activities related to the programme budget for 2014–2015 (UNEP/CHW/OEWG.9/INF/29/Add.1). The Open-ended Working Group may wish to take note of the information provided in the note.

#### Item 4

#### Work programme of the Open-ended Working Group for 2016-2017

25. The Open-ended Working Group will have before it a note by the Secretariat on the work programme of the Open-ended Working Group for 2016–2017 (UNEP/CHW/OEWG.9/14). The Open-ended Working Group may wish to take note of the information provided in the note and consider the action proposed therein.

#### Item 5

#### Other matters

- 26. The Open-ended Working Group will have before it a note by the Secretariat on the report of the first meeting of the Environmental Network for Optimizing Regulatory Compliance on Illegal Traffic(ENFORCE) (UNEP/CHW/OEWG.9/INF/31). The Chair of the Network, Ms. Leila Devia (Basel Convention Regional Centre in Argentina), will be invited to provide a report on the first meeting of the Network, which was held in Bangkok on 18 and 19 November 2013, and to provide information on the activities undertaken by the Network. The Open-ended Working Group may wish to take note of the information provided.
- 27. The Open-ended Working Group will also have before it a note by the Secretariat on a science fair to be held at the conferences of the parties to the Basel, Rotterdam and Stockholm conventions in May 2015 (UNEP/CHW/OEWG.9/INF/32). The Open-ended Working Group may wish to take note of the information provided.
- 28. The Open-ended Working Group may wish to discuss any other matters.

#### Item 6

#### Adoption of the report

29. At the last session of its meeting, the Open-ended Working Group will be invited to consider and adopt the draft report on its work prepared by the Rapporteur.

#### Item 7

#### Closure of the meeting

30. It is expected that the meeting will be closed by a co-chair by 6 p.m. on Friday, 19 September 2014.



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## UNEP/CHW/OEWG.9/14



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Open-ended Working Group of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal Ninth meeting
Geneva, 16–19 September 2014
Item 4 of the provisional agenda\*
Work programme of the Open-ended

## Work programme of the Open-ended Working Group for 2016–2017

Note by the Secretariat

## I. Introduction

Working Group for 2016-2017

- 1. At its twelfth meeting, the Conference of the Parties to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal is expected to adopt the work programme of the Open-ended Working Group for the biennium 2016–2017. In preparation for that process, and in accordance with its usual practice, the Secretariat has prepared a draft work programme for consideration by the Working Group at its ninth meeting (see annex).
- 2. In considering this item, the Open-Ended Working Group may wish to take into account the options for its operations set out in the annex to the note by the Secretariat (UNEP/CHW/OEWG.9/5) and any discussions on the issue during its ninth meeting.

## II. Proposed action

3. The Open-ended Working Group may wish to adopt a decision along the following lines:

The Open-ended Working Group

- 1. Takes note of the draft work programme of the Open-ended Working Group for 2016-2017;<sup>1</sup>
- 2. *Invites* parties and others to submit to the Secretariat comments on the draft work programme by 7 November 2014, and requests the Secretariat to make the comments available on the website of the Basel Convention;
- 3. Requests the Secretariat to revise the draft work programme, in consultation with the Bureau of the Open-ended Working Group and the Bureau of the Conference of the Parties and taking into account the discussions at the ninth meeting of the Working Group, for consideration and possible adoption by the Conference of the Parties at its twelfth meeting;

<sup>\*</sup>UNEP/CHW/OEWG.9/1.

<sup>&</sup>lt;sup>1</sup> UNEP/CHW/OEWG.9/14, annex.

4. *Also requests* the Secretariat to prepare a draft decision on the work programme of the Open-ended Working Group for 2016–2017 for consideration and possible adoption by the Conference of the Parties at its twelfth meeting.

## Annex

# Draft work programme of the Open-ended Working Group for 2016-2017

Topics	Activities	s Mandate <sup>a</sup>			
I. Strategic issues					
A. Strategic framework	Consider the preliminary mid-term evaluation of the strategic framework submitted by the Secretariat	Decision BC-11/2	High		
B. Cartagena Declaration on the Prevention, Minimization and Recovery of Hazardous Wastes and Other Wastes	Review the progress that parties have made in the implementation of the Cartagena Declaration and the road map for action as developed	Annex IV to the report of the tenth meeting of the Conference of the Parties Paragraph 109 of the report of the eighth meeting of the Open-ended Working Group	High		
C. Developing guidelines for environmentally sound management	Consider the work programme and report of activities of the expert working group on environmentally sound management	Decision BC-11/1	High		
II. Scientific and tec	hnical matters				
A. Technical guidelines	<ol> <li>(a) Update the general technical guidelines for the environmentally sound management of wastes consisting of, containing or contaminated with persistent organic pollutants and prepare or update specific technical guidelines with regard to the chemicals listed in Annexes A, B and C to the Stockholm Convention by decisions SC-4/10-SC-4/18, SC-5/3 and SC-6/13 of the Conference of the Parties to the Stockholm Convention, including the following:</li> <li>Establishment of levels of destruction and irreversible transformation for the chemicals necessary to ensure that when disposed of they do not exhibit the characteristics of persistent organic pollutants specified in paragraph 1 of Annex D of the Stockholm Convention;</li> <li>Determination of which disposal methods constitute environmentally sound disposal as referred to in paragraph 1 (d) (ii) of Article 6 of the Stockholm Convention;</li> <li>Establishment, as appropriate, of the concentration levels of the chemicals in order to define for them level so the chemicals in order.</li> </ol>	Decision BC-11/3	High		
	to define for them low persistent organic pollutant content as referred to in paragraph 1 (d) (ii) of Article 6 of the Stockholm Convention;  (b) Review waste-related aspects of the draft guidance document for the inventory of perfluorooctane sulfonic acid (PFOS) and related chemicals listed under the Stockholm Convention (2012), the draft guidance for the inventory of polybrominated diphenyl ethers (PBDEs) listed under the Stockholm Convention (2012), the draft guidance on best available techniques and best environmental practices for the use of PFOS and related chemicals listed under the Stockholm Convention (2012) and the draft guidance on the				

Topics	Activities	Mandate <sup>a</sup>	Priority			
best available techniques and best environmental practices for the recycling and waste disposal of articles containing PBDEs listed under the Stockholm Convention (2012)						
	2. Update the technical guidelines for the environmentally sound management of wastes consisting of elemental mercury and wastes containing or contaminated with mercury	Decision BC-11/5	High			
B. Amendments to the annexes to the Basel Convention	Consider and review any applications for changes and any corrections to the list of wastes in Annexes VIII and IX to the Convention	Decision VIII/15	High			
2. Consider the amendment of the entries in Annex VIII to the Basel Convention for polychlorinated dibenzo-furans and polychlorinated dibenzo-dioxins (entry A4110), DDT and other relevant persistent organic pollutants to include concentration levels for those chemicals, after the development of an appropriate framework for establishing de minimis concentrations		Decision BC-11/3	Medium			
C. Classification and hazard in the World Customs Organization Harmonized Characterization of wastes  Provide guidance on the identification of wastes in the World Customs Organization Harmonized Commodity Description and Coding System and related matters		Decision BC-10/10	Medium			
III. Legal, governan	ace and enforcement matters					
A. Consultation with the Committee for Administering the Mechanism for Promoting Implementation and Compliance of the Convention	with the Committee for Administering the Mechanism for Promoting Implementation and Compliance of the		High			
B. Providing further legal clarity (country-led initiative)	degal clarity working group on legal clarity and, based on it and the outcome of discussions, submit		High			
IV. International cooperation and coordination						
A. Basel Convention Partnership Programme	onvention on Computing Equipment, including its recommendations, and, based on these and the		High			
B. Environmentally sound dismantling of ships  Consider the report of the Secretariat on the programmes for sustainable ship recycling and on developments in relation to the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009		Decision BC-11/16	Medium			

Topics	Topics Activities		Priority
V. Programme of w	ork and budget		
Financing and budget for the biennium 2014–2015	Consider the reports by the Secretariat on all sources of income received, including the reserve and fund balances and interest, together with actual, provisional and projected expenditures and commitments, and by the Executive Secretary on all expenditures against the agreed budget lines	Decision BC-11/26	Medium

<sup>&</sup>lt;sup>a</sup> Where applicable, the relevant decisions of the Conference of the Parties will be added at the twelfth meeting of the Conference.



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## **UNEP**/CHW/OEWG.9/INF/6/Rev.1



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Open-ended Working Group of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal Ninth meeting Geneva, 16–19 September 2014 Item 3 (b) (i) c.

Matters related to the work programme of the Open-ended Working Group for 2014–2015: scientific and technical matters: technical guidelines: technical guidelines on transboundary movements of electronic and electrical waste and used electrical and electronic equipment, in particular regarding the distinction between waste and non-waste under the Basel Convention

Draft technical guidelines on transboundary movements of electronic and electrical waste and used electrical and electronic equipment, in particular regarding the distinction between waste and non-waste under the Basel Convention

### Note by the Secretariat

The annex to the present note sets out the draft technical guidelines on transboundary movements of electronic and electrical waste and used electrical and electronic equipment, in particular regarding the distinction between waste and non-waste under the Basel Convention, as amended by the Open-ended Working Group at its ninth meeting. The present note, including its annex, has not been formally edited.

#### Annex

Draft technical guidelines on transboundary movements of electronic and electrical waste and used electrical and electronic equipment, in particular regarding the distinction between waste and non-waste under the Basel Convention

(Draft of 19 September 2014)

#### Note to the reader

- 1. Paragraph 26 (b) of the current draft technical guidelines should serve as basis for further development of the guidelines until the twelfth meeting of the Conference of the Parties in lieu of the proposals included in the previous versions of the guidelines.
- 2. The text includes, among others, elements on documentation to be provided during the transport of used equipment as part of the conditions that have to be met. Such elements may need to be reflected in other parts of the guidelines e.g. paragraph 24. The overall flow of paragraphs 24 to 26 and other related parts of the guidelines, including the glossary of terms, may be considered at a later stage. Reaching an agreement on the criteria contained in paragraph 26 (b) was identified by the contact group on technical matters established at the ninth meeting of the Open-ended Working Group as being the preferred option.
- 3. Paragraph alt 26 (b) has been put forward to serve as alternative text in case no agreement on the criteria mentioned above could be reached during the twelfth meeting of the Conference of the Parties. As indicated in paragraph 2 of decision OEWG-9/5, it could serve as a temporary fall-back position that would allow adoption of the guidelines at the twelfth meeting of the Conference of the Parties.

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## Abbreviations and acronyms

AQSIQ Administration of Quality Supervision, Inspection and Quarantine of China

BAN Basel Action Network BC Basel Convention

BCRC-SEA Basel Convention Regional Centre for South-East Asia

BFR Brominated flame retardant

CCIC China Certification & Inspection Group

CFCs Chlorofluorocarbons

CMR Convention relative au contrat de transport international de marchandises par route

(Convention on the Contract for the International Carriage of Goods by Road)

CRT Cathode ray tubes EC European Community

ESM Environmentally sound management

EU European Union

HS Harmonized Commodity Description and Coding System

(or short form Harmonized System)

HSA Health and Safety Authority

ICT Information and communications technologies

ILO International Labour Organization

kg Kilogram

LCD Liquid crystal display

mg Milligram

MPPI Mobile Phone Partnership Initiative

OECD Organization for Economic Cooperation and Development

OHS Occupational health and safety

OHSAS Occupational health and safety assessment series PACE Partnership for Action on Computing Equipment

PBBs Polybrominated biphenyls
PCBs Polychlorinated biphenyls
PCNs Polychlorinated naphthalenes
PCTs Polychlorinated terphenyls

PVC Polyvinylchloride

StEP Solving the e-waste problem

UNECE United Nations Economic Commission for Europe

UNEP United Nations Environment Programme

UNU United Nations University
TBM Transboundary movement
WCO World Customs Organization

### I. Introduction

### A. Scope

- 1. The present technical guidelines provide guidance on transboundary movements of waste electrical and electronic equipment (e-waste) and used electrical and electronic equipment (used equipment) that may or may not be e-waste, in particular on the distinction between waste and non-waste, pursuant to decisions IX/6, BC-10/5 and BC-11/4 of the Conference of the Parties to the Basel Convention on the control of Transboundary Movement of Hazardous Wastes and Their Disposal (the Convention).
- 2. These guidelines focus on clarifying aspects related to transboundary movements of e-waste and used equipment that may or may not be e-waste. It is difficult to define and evaluate the distinction between waste and non waste when considering used equipment destined for repair, refurbishment or direct reuse. Further these guidelines consider which e-waste is hazardous waste or "other waste" and therefore would fall under the provisions of the Convention. Without such distinctions it is difficult for enforcement agencies to assess if the provisions of the Basel Convention for transboundary movements apply, as the Convention only applies to hazardous wastes and other wastes

2bis. Only whole used equipment and components that can be removed from equipment, be tested for functionality and either be subsequently directly reused or reused after repair or refurbishment are considered in these guidelines. For the purpose of these guidelines, the term equipment also covers such components.<sup>1</sup>

- 3. These guidelines provide:
- (a) Information on the relevant provisions of the Convention applicable to transboundary movements of e-waste;
- (b) Guidance on the distinction between waste and non-waste when used equipment is moved across borders;
- (c) Guidance on the distinction between hazardous waste and non-hazardous waste when used equipment is moved across borders;
- (d) General guidance on transboundary movements of e-waste and used equipment and enforcement of the control provisions of the Convention.
- 4. These guidelines are intended for government agencies including enforcement agencies that wish to implement, control and enforce legislation and provide training regarding transboundary movements. They are also intended to inform all actors involved in the management of e-waste and used equipment so they can be aware of the application of the Basel Convention and other considerations when preparing or arranging for transboundary movements of such items.
- 5. Their application should help reduce transboundary movements of e-waste in the scope of the Convention to the minimum consistent with the environmentally sound and efficient management of such wastes and reduce the environmental burden of e-waste that currently may be exported to countries and facilities that cannot handle it in an environmentally sound manner.
- 5ter Materials removed or derived from e-waste and used equipment e.g. metals, plastics, PVC-coated cables or activated glass, that are waste are not addressed in these guidelines, but may fall under the provisions of the Convention.
- 6. These guidelines do not cover other aspects of environmentally sound management of e-wastes such as collection, treatment and disposal. These aspects may be covered where appropriate in other guidance documents. In particular a series of guidelines were developed in the context of the following public-private partnership initiatives under the Basel Convention (on the action of the Conference of the Parties regarding these guidelines, see decisions BC-10/20, BC-10/21 and BC-11/15):
  - (a) Mobile Phone Partnership Initiative (MPPI):

<sup>1</sup> Definitions and explanations regarding the terms used in these guidelines are included in a glossary of terms in appendix I to the present document.

- (i) Revised guidance document on the environmentally sound management of used and end-of-life mobile phones (UNEP/CHW.10/INF/27/Rev.1);
- (ii) Awareness-raising and design considerations (MPPI, 2009a);
- (iii) Collection (MPPI, 2009b);
- (iv) Transboundary movement (MPPI, 2009 c);
- (v) Refurbishment (MPPI, 2009 d);
- (vi) Material recovery and recycling (MPPI, 2009 e);
- (b) Partnership for Action on Computing Equipment (PACE):
  - Sections 1, 2, 4 and 5 of the guidance document on the environmentally sound management of used and end-of-life computing equipment (UNEP/CHW.11/6/Add.1/Rev.1);
  - (ii) Environmentally sound management criteria recommendations;
  - (iii) Guidelines on environmentally sound testing, refurbishment, and repair of used computing equipment;
  - (iv) Guidelines on environmentally sound material recovery and recycling of end-oflife computing equipment;
  - (v) Guidelines on transboundary movement (TBM) of used and end-of-life computing equipment.

## B. About e-waste

- 7. The volume of e-waste being generated is growing rapidly, due to the wide use of equipment, both in developed countries and in developing countries. The total amount of global e-waste generated in 2005 was estimated to be 40 million tonnes (StEP, 2009). The latest estimates indicate that in 2012 an amount of 48.9 million tonnes of e-waste was generated globally (Huisman, 2012). The amount of e-waste in the European Union was estimated at between 8.3 and 9.1 million tonnes in 2005 and expected to reach some 12.3 million tonnes in 2020 (United Nations University, 2007). Currently e-waste is exported to countries that are not likely to possess the infrastructure and societal safety nets to prevent harm to human health and the environment, due to factors such as exports being less expensive than managing the waste domestically, the availability of markets for raw materials or recycling facilities and the location of manufacturers of electrical and electronic equipment. However, there are also examples of formal recycling facilities in developing countries and economies in transition that are repairing, refurbishing and recycling used equipment and e-waste in an environmentally sound manner. However, in some cases the conditions outside the facility, e.g. the downstream waste management may not provide environmentally sound management.
- 8. E-waste may contain hazardous substances such as lead, cadmium, mercury, POPs, asbestos and CFCs that pose risks to human health and the environment when improperly disposed of or recycled and that require specific attention as to their environmentally sound waste management. In most developing countries and countries with economies in transition, the capacity to manage the hazardous substances in e-waste is lacking. As an example, as regards the informal recovery industry in Asia there is clear evidence that the practice exploits women and child labourers who cook circuit boards, burn cables and submerge equipment in toxic acids to extract precious metals such as gold (Schmidt, 2006) and subjects them and their communities to damaged health and a degraded environment. Moreover, the techniques used by the informal sector are not only damaging human health and the environment, often they also perform poorly in recovering valuable resources, squandering precious resources such as critical metals for future use. Even management of non-hazardous wastes can cause significant harm to human health and the environment if not undertaken in an environmentally sound manner.
- 9. E-waste contains valuable materials that can be recovered for recycling including iron, aluminium, copper, gold, silver, platinum, palladium, indium, gallium and rare earth metals, thus contributing to sustainable resource management. The extraction of all of these metals from the Earth has a significant environmental impact. The use of such materials as raw materials after they have become waste can increase the efficiency of their use and lead to conservation of energy and reduction in greenhouse gas emissions when adequate technologies and methods are applied.
- 10. Direct reuse or reuse after repair or refurbishment can contribute even more to sustainable development. Reuse extends the life of equipment, which reduces the environmental footprint of the

resource-intensive production processes of the equipment. It may also provide access to such equipment for groups in society that otherwise would not have access to it due to reduced costs of second-hand equipment. Failure to handle equipment properly, however, can have negative impacts and often entail disposal when parts are replaced and discarded. The lack of clarity in defining when used equipment is waste and when it is not has led to a number of situations where such equipment is exported to, in particular, developing countries ostensibly for reuse but where a large percentage of these goods are in fact not suitable for further use or are not marketable and must be disposed of in the developing country as waste.

## II. Relevant provisions of the Basel Convention

## A. General provisions of the Basel Convention

- 11. The Basel Convention aims to protect human health and the environment against the adverse effects resulting from the generation, management, transboundary movements and disposal of hazardous and other wastes.
- 12. Paragraph 1 of Article 2 ("Definitions") of the Basel Convention defines wastes as "substances or objects which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law". In paragraph 4 of that Article, it defines disposal as "any operation specified in Annex IV" to the Convention. In paragraph 8, it defines the environmentally sound management of hazardous wastes or other wastes as "taking all practicable steps to ensure that hazardous wastes or other wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes".
- 13. Article 4 ("General obligations"), paragraph 1, establishes the procedure by which parties exercising their right to prohibit the import of hazardous wastes or other wastes for disposal shall inform the other parties of their decision. Paragraph 1 (a) states: "Parties exercising their right to prohibit the import of hazardous or other wastes for disposal shall inform the other parties of their decision pursuant to Article 13". Paragraph 1 (b) states: "Parties shall prohibit or shall not permit the export of hazardous or other wastes to the parties which have prohibited the import of such waste when notified pursuant to subparagraph (a) above".
- 14. Article 4, paragraphs 2 (a) to (e) and 2 (g), contain key provisions of the Basel Convention pertaining to environmentally sound management, transboundary movement, waste minimization and waste disposal practices that mitigate adverse effects on human health and the environment:

"Each party shall take the appropriate measures to:

- (a) Ensure that the generation of hazardous wastes and other wastes within it is reduced to a minimum, taking into account social, technological and economic aspects;
- (b) Ensure the availability of adequate disposal facilities, for the environmentally sound management of hazardous wastes and other wastes, that shall be located, to the extent possible, within it, whatever the place of their disposal;
- (c) Ensure that persons involved in the management of hazardous wastes or other wastes within it take such steps as are necessary to prevent pollution due to hazardous wastes and other wastes arising from such management and, if such pollution occurs, to minimize the consequences thereof for human health and the environment;
- (d) Ensure that the transboundary movement of hazardous wastes and other wastes is reduced to the minimum consistent with the environmentally sound and efficient management of such wastes, and is conducted in a manner which will protect human health and the environment against the adverse effects which may result from such movement":
- (e) Not allow the export of hazardous wastes or other wastes to a State or group of States belonging to an economic and/or political integration organization that are parties, particularly developing countries, which have prohibited by their legislation all imports, or if it has reason to believe that the wastes in question will not be managed in an environmentally sound manner, according to criteria to be decided on by the parties at their first meeting;
- (f) Prevent the import of hazardous wastes and other wastes if it has reason to believe that the wastes in question will not be managed in an environmentally sound manner."
- 15. Hazardous wastes and other wastes should, as far as is compatible with environmentally sound and efficient management, be disposed of in the country where they were generated (preambular paragraph 8). Transboundary movements of such wastes from the State of their generation to any other

State should be permitted only when conducted under conditions which do not endanger human health and the environment (preambular paragraph 9). In addition, transboundary movements of such wastes are permitted only if:

- (a) Such wastes, if exported, are managed in an environmentally sound manner in the country of import or elsewhere (Article 4, paragraph 8);
  - (b) One of the following conditions is met (Article 4, paragraph 9):
    - (i) If the country of export does not have the technical capacity and the necessary facilities to dispose of the wastes in question in an environmentally sound and efficient manner: or
    - (ii) If the wastes in question are required as a raw material for recycling or recovery industries in the country of import; or,
    - (iii) If the transboundary movement in question is in accordance with other criteria decided by the parties.

## B. Control procedure for transboundary movements

- 16. Any transboundary movements of hazardous and other wastes are subject to prior written notification from the exporting country and prior written consent from the importing and, if appropriate, transit countries (Article 6, paragraphs 1 to 4). Parties shall prohibit the export of hazardous wastes and other wastes if the country of import prohibits the import of such wastes (Article 4, paragraph 1 (b)). Some countries have implemented national prohibitions, inter alia following Decision III/1 including an amendment to the Convention banning the export of hazardous wastes from OECD/EU countries and Liechtenstein (proposed Annex VII) to non-Annex VII countries that has not entered into force. The Basel Convention also requires that information regarding any proposed transboundary movement is provided using the accepted notification form (Article 4, paragraph 2 (f)) and that the approved consignment is accompanied by a movement document from the point where the transboundary movement commences to the point of disposal (Article 4, paragraph 7 (c)).
- 17. Furthermore, hazardous wastes and other wastes subject to transboundary movements should be packaged, labelled and transported in conformity with international rules and standards (Article 4, paragraph 7 (b)).<sup>2</sup>
- 18. When transboundary movement of hazardous and other wastes to which consent of the countries concerned has been given cannot be completed, the country of export shall ensure that the wastes in question are taken back into the country of export if alternative arrangements cannot be made for their disposal in an environmentally sound manner (Article 8, first sentence). In the case of illegal traffic (as defined in Article 9, paragraph 1) as the result of the conduct on part of the exporter or generator, the country of export shall ensure that the wastes in question are:
- (a) Taken back by the exporter or the generator or, if necessary, by itself into the State of export; or if impracticable;
- (b) Otherwise disposed of in accordance with the provisions of the Convention (Article 9, paragraph 2).
- 19. No transboundary movements of hazardous wastes and other wastes are permitted between a party and a non-party to the Convention (Article 4, paragraph 5) unless a bilateral, multilateral or regional arrangement exists, as required under Article 11 of the Convention.

#### C. Definitions of waste and hazardous waste

20. The Convention defines waste as "substances or objects which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law" (Article 2, paragraph 1). It defines disposal in article 2, paragraph 4, as "any operation specified in Annex IV to this Convention". It is important to note that national provisions concerning the definition of waste may differ and, therefore, the same material may be regarded as waste in one country but as non-waste in another country.

<sup>&</sup>lt;sup>2</sup> In this connection, the United Nations Recommendations on the Transport of Dangerous Goods (Model Regulations) (ECE, 2003a – see annex V, Bibliography) ) or later versions should be used.

- 21. Hazardous waste is defined in the Convention as "wastes that belong to any category contained in Annex I, unless they do not possess any of the characteristics contained in Annex III; (definition in article 1, paragraph 1(a)) and wastes that are not covered under paragraph 1(a) but are defined as, or considered to be, hazardous wastes by the domestic legislation of the party of export, import or transit" (definition in article 1, paragraph 1(b)). The definition of hazardous waste therefore incorporates domestic law such that material regarded as a hazardous waste in one country but not in another country is defined as hazardous waste under the Convention. The Convention also requires that parties inform the other parties, through the Secretariat of the Convention, of their national definitions (article 3). Providing detailed and specific information on the national definitions of hazardous waste can avoid ambiguity concerning the applicability of national definitions.
- 22. To aid in distinguishing hazardous wastes from non-hazardous wastes for the purpose of Article 1, paragraph 1 (a), two annexes have been inserted into the Convention. Annex VIII includes wastes considered to be hazardous according to Article 1, paragraph 1 (a), of the Convention unless they do not possess any of the characteristics of Annex III. Annex IX includes wastes that are not covered by Article 1, paragraph 1 (a), unless they contain Annex I material to an extent causing them to exhibit an Annex III characteristic. Both Annex VIII and Annex IX include listings for various types of e-waste. More information on the distinction between hazardous and non hazardous e-waste is included in section IV. B of these guidelines.

## III. Guidance on the distinction between waste and non-waste

#### A. General considerations

- 23. To determine if used equipment is waste it may be necessary to examine the history of an item and its proposed fate on a case-by-case basis. However, there are characteristics of the used equipment that are likely to indicate whether it is waste or not.
- 24. Without prejudice to paragraph 26 below, where the holders of used equipment claim that this is intended to be or is a transboundary transport of used equipment intended for direct reuse and not e-waste, the following should be provided or be in place to back up this claim to an authority on its request (prior to the transport, either generally or on a case-by-case basis):
- (a) A copy of the invoice and contract relating to the sale and/or transfer of ownership of the used equipment, , and documentation accompanying the transport according to paragraph 30, including inter alia a signed declaration that indicates that the used equipment has been tested and is destined for direct reuse and fully functional and includes information on the further user or, where this is not possible, the retailer or distributer;
- (b) Evidence of evaluation or testing<sup>3</sup> in the form of a copy of the records (certificate of testing proof of functionality) on every item within the consignment and a protocol containing all record information (see section III C below);
- (c) A declaration made by the holder who arranges the transport of the equipment that none of the equipment within the consignment is defined as or considered to be waste in any of the countries involved in the transport (countries of export and import, and, if applicable countries of transit):
- (d) Appropriate protection against damage during transportation, loading and unloading, in particular through sufficient packaging <sup>4</sup> and stacking of the load.

## B. Situations where used equipment should normally be considered waste, or not be considered waste

- 25. Used equipment is waste in a country if it is defined or considered as waste under the provisions of its national legislation. Without prejudice of paragraph 26, used equipment should normally be considered waste if:
- (a) The equipment is not complete essential parts are missing and the equipment cannot perform its essential key functions;

<sup>&</sup>lt;sup>3</sup> Testing of used equipment should be performed before shipment in the country of export.

<sup>&</sup>lt;sup>4</sup> With regard to computing equipment, see the packaging guidelines developed under PACE.

- (b) It shows a defect that materially affects its functionality and fails relevant functionality tests;
- (c) It shows physical damage that impairs its functionality or safety, as defined in relevant standards;
- (d) The protection against damage during transport, loading and unloading operations is inappropriate, e.g. the packaging or stacking of the load is insufficient;
- (e) The appearance is particularly worn or damaged, thus reducing the marketability of the item(s);
- (f) The item has among its constituent part(s) hazardous components that are required to be discarded or are prohibited to be exported or used in such equipment under national legislation;<sup>5</sup>
- (g) The equipment is destined for disposal or recycling instead of reuse or its fate is uncertain;
  - (h) There is no regular market for the equipment;
  - (i) It is destined for cannibalization (to gain spare parts); or
- (j) The price paid for the items is significantly lower than would be expected from fully functional equipment intended for reuse.
- 26. Used equipment should normally not be considered waste:
- (a) Where the criteria in paragraph 24 (a) to (d) above are met and it is not destined for any of the operations listed in Annex IV of the Convention (recovery or disposal operations) and is directly reused for the purpose for which it was originally intended or presented for sale, or exported for the purpose of being put back to direct reuse or sold to end consumers for such reuse; or
- (b) [When an exporter of used equipment and their components exports such equipment for testing, repair and refurbishment and all of the following conditions are met<sup>6</sup>:
  - (i) Equipment and their components are exported only to Parties that have notified the Secretariat of the Basel Convention via Article 13(2) that they do not consider used equipment subject to the conditions included in paragraph 26b to be waste. Further restrictions made on a national basis can be so noted (e.g. import bans for certain types of used equipment). In the same transmission these Parties shall indicate which facilities are permitted to receive and process the used equipment under the conditions in paragraph26b. Such information will be publicly available on the SBC website and be kept up to date;
  - (ii) Exported equipment and their components are ROHS7 compliant and do not contain cathode ray tubes (CRTs);
  - (iii) Used equipment and their components and any residual waste, materials, and products shall continue to be owned or controlled by the exporter (with or without third parties involved in implementation) throughout the export, transit, import, testing, repair, and refurbishment processes, until they are either tested, fully functional equipment or components and are made available for direct reuse, or as resulting scrap/waste disposed of according to vi below;
  - (iv) Each shipment is sent under a valid contract between the exporter and the importing facility, requiring the importing facility to complete all applicable requirements in paragraph 26b. The exporter shall perform regular on-going due diligence to ensure importing facility(s) and any other third parties involved are consistently meeting the requirements of paragraph 26b;
  - (v) Each shipment is accompanied by a written and signed declaration by the exporter which is readily available in full to all relevant government authorities. The declaration by the exporter shall declare that all of the criteria

<sup>&</sup>lt;sup>5</sup> E.g. asbestos, PCBs, CFCs. The use of these substances is phased out or prohibited in the context of multilateral environmental agreements or in national legislation of certain countries for certain applications.

<sup>&</sup>lt;sup>6</sup> For medical equipment a review should be undertaken to assess if the conditions mentioned would be applicable or that modifications would be needed. The information provided by DITTA could be used as first basis for this review.

<sup>&</sup>lt;sup>7</sup> A reference to the scope of ROHS may be needed.

of paragraph 26 b are met. A standard form (Annex .....) can be used for such a declaration;

- (vi) All residual waste generated from the testing/repair/refurbishment operation which is hazardous according to the Basel Convention definitions (Article 1, 1(a) and 1(b)) or its hazardous characteristics are unknown, shall be disposed of [in an environmentally sound manner (ESM) in accordance with the Basel Convention][in an Annex VII country][ in an Annex VII country unless accompanied by a conclusive proof that the residual hazardous waste can be treated at a facility in the importing country is ESM]. Any transboundary movements necessary shall be accomplished in accordance with the Basel Convention; and
- (vii) [Each piece of equipment and their components is individually packaged to prevent hazards and loss of value, including protection against abrasion, static charges, ignition, loss of fluids or toxic contaminants, or breakage.]
   [Appropriate protection against damage during transportation, loading and unloading, in particular through sufficient packaging 8 and stacking of the load]

Alt 26(b) [ For cases of transboundary transports of used equipment other than the case referred to in paragraph 26, Parties may define their own conditions, such as on the following:

- (i) Accountability of the exporter;
- (ii) Compliance with legislation on hazardous substances in products;
- (iii) Packaging;
- (iv) Import restrictions; and
- (v) Management of residues arising from the repair, refurbishment or testing operations in line with the provisions of the Convention;

upon which such equipment may not be waste. Parties should inform the Secretariat about any such conditions. It should be documented by conclusive proof that these conditions are met and the transport should be accompanied by appropriate documentation. In the absence of such documentation, the transboundary transport of such equipment should be considered as a transboundary movement of waste.]

26bis. [The documentation accompanying the transport of used equipment falling under paragraph 26(b) should contain the following information:<sup>9</sup>

- (a) Name of the holder who arranges the transport, [importer], receiving facility [and carrier(s)];
  - (a bis) Description of the equipment (e.g. name);
  - (b) Quantity of equipment;
  - (c) Date of the movement;
  - (d) Countries concerned;
- (e) Signed declaration by the holder who arranges the transport of the equipment, including the declaration according to paragraph 24(c).

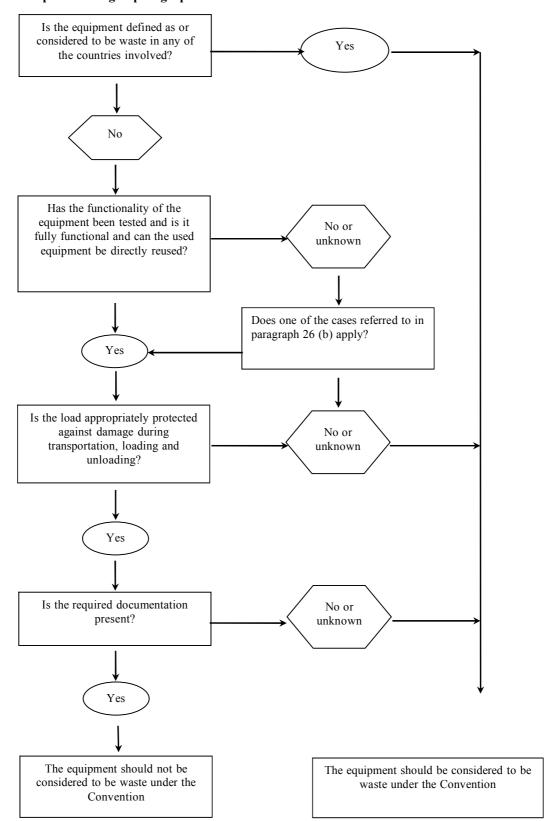
[Upon receipt of the movement, the receiving facility should provide a signed declaration of receipt]. A recommended form for this documentation is contained in appendix II.]

26ter. The figure below summarizes the decision steps as described in Section II.A and this section.

<sup>&</sup>lt;sup>8</sup> With regard to computing equipment, see the packaging guidelines developed under PACE.

<sup>&</sup>lt;sup>9</sup> Insofar the information (except for subparagraph (b)) is identical for all equipment in the same transport, the information may be provided covering all equipment in a transport.

## Decision steps according to paragraphs 24 and 26



## C. Evaluation and testing of used equipment destined for direct reuse

27. Holders who prepare an export of used equipment destined for direct reuse covered by paragraph 26 (a) rather than e-waste should take the following steps:

#### Step 1: evaluation and testing

28. The tests to be conducted depend on the kind of equipment. Functionality should be tested and the presence of hazardous substances or components should be evaluated. The completion of a visual inspection without testing functionality is unlikely to be sufficient. For most of the equipment, a functionality test of the essential key functions is sufficient. Section IV. B of these guidelines provides guidance on the evaluation for the presence of hazardous substances and components. A list of references to examples of functionality tests for certain categories of used equipment is provided in appendix IV to the present document.

#### Step 2: recording

- 29. Results of evaluation and testing should be recorded. The record should contain the following information:
  - (a) Name of the item;
  - (b) Name of the producer (if available)
  - (c) Identification number of the item (type no.), where applicable;
  - (d) Year of production (if available);
  - (e) Name and address of the company responsible for evidence of functionality;
- (f) Result of tests as described in step 1 (e. g. Naming defective parts and defect or indication of full functionality) including date of the functionality test;
  - (g) Kind of tests performed;
  - (h) Signed declaration.
- 30. The record should accompany the transport and should be fixed securely but not permanently on either the used equipment itself (if not packed) or on the packaging so it can be read without unpacking the equipment. A recommended form for the record on the results of evaluation and testing, including the declaration according to paragraph 24(a), is contained in appendix III.

## IV. Guidance on transboundary movements of e-waste

## A. General considerations

- 31. When e-waste is considered to be hazardous waste according to Article 1, paragraph1 (a) of the Convention or by national legislation (Article 1, paragraph1 (b)), national import or export prohibitions must be respected. Where no such national prohibitions apply, the control procedure as mentioned in section II. B of these guidelines applies. For e-waste that is not considered to be hazardous, the Basel Convention does not contain a specific procedure. However, certain parties have implemented procedures in those cases, such as those applicable for transboundary movements of "green-listed" waste under European Union legislation, <sup>10</sup> or the procedure for pre-movement inspection of recycling materials as applicable for China. <sup>11</sup>
- 32. In a case where a competent authority involved in transboundary movements of e-waste considers a specific item to be hazardous waste according to its national law, while other authorities would not, the control procedure for hazardous waste would apply. The same mechanism is suggested for differences of opinion between competent authorities on the assessment as to whether the equipment constitutes a waste or not. In those cases, the applicable procedures for transboundary

<sup>&</sup>lt;sup>10</sup> Regulation (EC) No. 1013/2006 on shipments of waste and Regulation (EC) No. 1418/2007 concerning the export for recovery of certain waste listed in annex III or IIIA to Regulation (EC) No. 1013/2006 to certain countries to which the OECD decision on the control of transboundary movements of wastes does not apply (see: http://ec.europa.eu/environment/waste/shipments/legis.htm).

<sup>&</sup>lt;sup>11</sup> Pre-movement inspections for recycling materials are established by the General Administration of Quality Supervision, Inspection and Quarantine of China (AQSIQ). Information on the procedure can be found on the web-site of the China Certification & Inspection Group (CCIC), which is authorized to handle this procedure in various countries worldwide, e.g in Europe at http://www.ccic-europe.com.

movements of waste would be applied. If this approach is taken and the applicable procedures are not followed, the movement would be regarded as illegal.

- 33. [Certain parties may consider used equipment destined for repair, refurbishment or upgrading to be waste, while others may not. In accordance with the principles of the Convention, if one of the countries concerned considers this used equipment to be waste the procedures on transboundary movement of e-waste as indicated in section IV A of this guidance should be followed. Note that in some cases, the decision to classify used equipment destined for repair or refurbishment as a hazardous waste could result in the imposition of a ban on the export or import of such equipment under national legislation or pursuant to the Convention's prohibition on trade with non-parties.
- 34. If, however, following Article 2, paragraph 1, of the Basel Convention and national legislation, none of the parties involved in a transboundary movement has determined that used equipment destined for repair or refurbishment in the importing country is classified as hazardous waste or other waste, the Basel Convention control procedure will not apply.<sup>12</sup>]

## B. Distinction of hazardous waste and non-hazardous waste

35. E-waste is included in Annex VIII to the Convention with the following entry for hazardous wastes:

"A1180 Waste electrical and electronic assemblies or scrap <sup>13</sup> containing components such as accumulators and other batteries included on list A, mercury-switches, glass from cathode-ray tubes and other activated glass and PCB capacitors, or contaminated with Annex I constituents (e.g. cadmium, mercury, lead, polychlorinated biphenyl) to an extent that they possess any of the characteristics contained in Annex III (note the related entry on list B, B1110)."<sup>14</sup>

36. E-waste is also included in Annex IX to the Convention with the following entry for non-hazardous wastes:

"B1110Electrical and electronic assemblies:

- Electronic assemblies consisting only of metals or alloys;
- Waste electrical and electronic assemblies or scrap<sup>15</sup> (including printed circuit boards) not containing components such as accumulators and other batteries included on list A, mercury-switches, glass from cathode-ray tubes and other activated glass and PCB-capacitors, or not contaminated with Annex I constituents (e.g., cadmium, mercury, lead, polychlorinated biphenyl) or from which these have been removed, to an extent that they do not possess any of the characteristics contained in Annex III (note the related entry on list A A1180);
- Electrical and electronic assemblies (including printed circuit boards, electronic components and wires) destined for direct reuse,<sup>16</sup> and not for recycling or final disposal."<sup>17</sup>

<sup>&</sup>lt;sup>12</sup> Paragraphs 33 and 34 were the beginning of section IV B of the previous draft containing a procedure for transboundary movement of used equipment destined for repair or refurbishment. In most of the reactions on the previous draft it was suggested that section IV B be deleted. It was considered by most readers as confusing and redundant. Only Argentina indicated it wanted to maintain this section, without specifying its reasons for keeping it. Moreover, despite the request of the Open-ended Working Group for information about whether or not this procedure is used in practice, no such information was received. It may suggest that such a procedure is not used to date. Therefore, in the current version of the guidelines, the bulk of what was section IV B in the previous version has been removed. Only the first part of that section (paragraph 34 and the first lines of paragraph 35 in the previous version of the guidelines) has been maintained as bracketed text as some indicated that this text was useful. The text is placed after the section indicating the general considerations for transboundary movement. It must be noted that there is some repetition with the text in paragraphs 31 and 32 of the current draft. BAN had indicated that it would like to use the procedure mentioned in section IV B of the previous draft for movements of equipment that meet the conditions indicated in paragraph 26 (b). –The procedure could be re-introduced if Parties wish to follow this suggestion.

<sup>&</sup>lt;sup>13</sup> This entry does not include scrap assemblies from electric power generation.

<sup>&</sup>lt;sup>14</sup> PCBs are at a concentration level of 50 mg/kg or more.

 $<sup>^{\</sup>rm 15}\,{\rm This}$  entry does not include scrap from electrical power generation.

<sup>&</sup>lt;sup>16</sup> Reuse can include repair, refurbishment or upgrading, but not major reassembly.

<sup>&</sup>lt;sup>17</sup> In some countries these materials destined for direct reuse are not considered wastes.

- 37. Equipment will often contain hazardous components, examples of which are indicated in entry A1180 of Annex VIII. E-waste should therefore be presumed to be hazardous waste unless it can be shown that it does not contain such components and in particular:<sup>18</sup>
- (a) Lead-containing glass from cathode ray tubes (CRTs) and imaging lenses, which are assigned to Annex VIII entries A1180 or A2010 "glass from cathode ray tubes and other activated glass". This waste also belongs to category Y31 in Annex I, "Lead; lead compounds" and is likely to possess hazard characteristics H6.1, H11, H12 and H13 included in Annex III;
- (b) Nickel-cadmium batteries and batteries containing mercury, which are assigned to Annex VIII entry A1170 "unsorted waste batteries...". This waste also belongs to category Y26 in Annex I, "Cadmium; cadmium compounds" or Y29 "Mercury, mercury compounds" and is likely to possess hazard characteristics H6.1, H11, H12 and H13;
- (c) Selenium drums, which are assigned to Annex VIII entry A1020 "selenium; selenium compounds". This waste also belongs to category Y25 in Annex I, "Selenium; selenium compounds" and is likely to possess hazard characteristics H6.1, H11, H12 and H13;
- (d) Printed circuit boards, which are assigned to Annex VIII entry A1180 "waste electronic and electrical assemblies......", and entry A1020 "antimony; antimony compounds" and "beryllium; beryllium compounds". These assemblies contain brominated compounds and antimony oxides as flame retardants, lead in solder and beryllium in copper alloy connectors. They also belong in Annex I, to categories Y31, "Lead; lead compounds", Y20, "Beryllium, beryllium compounds" and Y27 "Antimony, antimony compounds" and Y45, organohalogen compounds other than substances referred to elsewhere in Annex I. They are likely to possess hazard characteristics H6.1, H11, H12 and H13:
- (e) Fluorescent tubes and backlight lamps from liquid crystal displays (LCD), which contain mercury and are assigned to Annex VIII entry A1030 "Mercury; mercury compounds". This waste also belongs to category Y29 in Annex 1, "Mercury; mercury compounds" and is likely to possess hazard characteristics H6.1, H11, H12 and H13;
- (f) [Plastic components containing brominated flame retardants (BFRs), in particular BFRs that are persistent organic pollutants according to the Stockholm Convention, which can be assigned to Annex VIII entry A3180 "Wastes, substances and articles containing, consisting of or contaminated with polychlorinated biphenyl (PCB), polychlorinated terphenyl (PCT), polychlorinated naphthalene (PCN) or polybrominated biphenyl (PBB), or any other polybrominated analogues of these compounds, at a concentration of 50 mg/kg or more." This waste also belongs to category Y45 in Annex I, organohalogen compounds other than substances referred to elsewhere in Annex I and to category Y27 "Antimony, antimony compounds" and is likely to possess hazard characteristics H6.1, H11, H12 and H13;]
- Alt (f) [Plastic components containing brominated flame retardants (BFRs), in particular BFRs that are persistent organic pollutants according to the Stockholm Convention, may, where appropriate, be assigned to Annex VIII entry A3180 "Wastes, substances and articles containing, consisting of or contaminated with polychlorinated biphenyl (PCB), polychlorinated terphenyl (PCT), polychlorinated naphthalene (PCN) or polybrominated biphenyl (PBB), or any other polybrominated analogues of these compounds, at a concentration of 50 mg/kg or more". In general, waste containing brominated flame retardants also belongs to category Y45 in Annex I, organohalogen compounds other than substances referred to elsewhere in Annex I. If antimony compounds are used as synergist for these brominated flame retardants, in addition category Y27 "Antimony, antimony compounds" can be assigned. Depending on the concentration and the chemical properties of the brominated flame retardants and their synergists such waste is likely to possess hazard characteristics H6.1, H11, H12 and H13;]
- (g) Other components containing or contaminated with mercury, such as mercury switches, contacts and thermometers, which are assigned to Annex VIII entry A 1010, A1030 or A1180. This waste also belongs to category Y29 in Annex I," Mercury; mercury compounds" and is likely to possess hazard characteristics H6.1, H11, H12 and H13;
- (h) Waste oils/liquids, which are assigned to annex VIII entry A 4060 "Waste oil/water, hydrocarbons/water mixtures, emulsions". The waste belongs to category Y8 in Annex I, "Waste mineral oils unfit for their originally intended use" or Y9 in Annex I, "Waste oil/water,

<sup>&</sup>lt;sup>18</sup> The following list of components or constituents are non-exhaustive examples.

hydrocarbons/water mixtures, emulsions", and is likely to possess hazardous characteristics H3, H11, H12and H13;

(i) Components containing asbestos, such as in wires, cooking stoves and heaters, which are assigned to annex VIII entry A 2050. The waste belongs to category Y 36 in Annex I, "Asbestos (dust and fibres)" and is likely to possess hazardous characteristic H 11.

37 bis. Further guidance and examples of hazardous and non-hazardous equipment and on hazardous components that can be found in electronic and electrical equipment is contained in appendix IV to the present document.

## V. Guidance on control of transboundary movements of e-waste and used equipment

- 38. Inspections should be undertaken by competent bodies of State authorities (e.g. police, customs and (environmental) inspectors) at facilities and during the movement. Holders of used equipment who arrange the transport should ensure that it is accompanied by appropriate documentation according to paragraphs 24, 26, 29, 30 and 39 of those guidelines and that it is appropriately protected against damage during transportation, loading and unloading, in particular through sufficient packaging or appropriate stacking of the load in order to demonstrate that the items concerned are not e-waste.
- 39. For practical reasons of control, every load of used equipment should also be accompanied by a declaration of the liable person on its responsibility and by a relevant transport document, e.g. by a waybill or a CMR document where applicable. <sup>19</sup> This document contains a description of the goods transported using the Harmonized Commodity Description and Coding System (normally referred to as the "Harmonized System") developed by the World Customs Organization (WCO).
- 40. In the absence of proof that an item is used equipment and not e-waste through appropriate documentation according to paragraphs 24, 26, 29, 30 and 39 and appropriate protection against damage during transportation, loading and unloading, in particular through sufficient packaging and appropriate stacking of the load which should be the obligations of the holder who arranges the transport, the relevant State authorities (e. g. customs, police or environmental agencies) should consider an item to be (potentially hazardous) e-waste and, in the absence of consents in accordance with the requirements of the Basel Convention, should presume that the export comprises a case of illegal traffic as specified in Article 9 of the Convention. In these circumstances the relevant competent authorities are obliged to abide with the provisions of Article 9. Illegal traffic is to be considered a criminal offence in accordance with Article 4.3 of the Convention.

40bis. When e-waste is exported as hazardous waste, the documentation required under the control procedure of the Convention should accompany the consignment.

40ter. The Secretariat of the Basel Convention has cooperated with the WCO to establish a table providing an overview of which codes of the Harmonized System contain materials that can be found in Annexes VII and IX to the Basel Convention. This table can facilitate comparison of the CMR documents with the documents that should accompany the transport of used equipment or e-waste according to the procedures in these guidelines.

41. Health and safety issues and potential risks for enforcement agents (such as customs officers) are important for any inspection of transports of e-waste or used equipment. Enforcement officers should have specific training before doing such inspections. Particular care should be applied when opening containers. In particular, if the transport consists of waste, the items may not have been stacked in a stable way and items may fall out of the container when it is opened it for inspection. The load may also contain hazardous substances that could be released when inspecting the load. Further information regarding health and safety aspects for inspections is contained in appendix IV to the present document.

<sup>&</sup>lt;sup>19</sup> Document containing the information as required under the Convention on the Contract for the International Carriage of Goods by Road (CMR Convention). Although the form in which the information should be presented is not mandatory, it is recommended that the standard CMR forms be used to facilitate communication in case of a control.

<sup>&</sup>lt;sup>20</sup> The latest version of the table can be found on the web-site of the WCO under http://www.wcoomd.org/en/topics/nomenclature/instrument-and-tools/interconnection-table.aspx. The table contains a correlation with goods covered by a number of international conventions, including the Basel Convention

## [Appendix I: Glossary of terms<sup>21</sup>

**Note:** Some of these terms were developed for the purpose of the present guidelines and should not be considered as having been agreed to internationally. Their purpose is to assist readers to better understand these guidelines. Insofar as appropriate, the use of these terms has been aligned with terms used in other guidelines developed under the Basel Convention

Basel Convention Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their

Disposal, adopted on March 22, 1989 and entered into force in 1992.

**Component** Element with electrical or electronic functionality connected together with other components,

including by soldering to a printed circuit board, to create an electric or electronic circuit with a particular function (for example an amplifier, radio receiver, monitor, hard-drive, motherboard,

battery).

**Direct reuse** [Using again equipment that is not waste for the same purpose for which it was conceived by

another person, without the necessity of repair or refurbishment] [Continued use of electrical and electronic equipment by another person without the necessity of repair, refurbishment, or (hardware) upgrading, provided that such continued use is for the intended purpose of the

equipment].

**Disposal** Any operations specified in Annex IV of the Basel Convention (Article 2, paragraph 4, of the

Convention).

sound management

professional use

**Environmentally** Taking all practicable steps to ensure that hazardous wastes or other wastes are managed in a

manner which will protect human health and the environment against the adverse effects which may result from such wastes (Article 2, paragraph 8, of the Convention).

**Equipment** Electrical and electronic equipment that is dependent on electric currents or electromagnetic fields

in order to work properly, including components that can be removed from equipment and can be tested for functionality and either be subsequently directly reused or reused after repair or

refurbishment.

**Equipment for** [Equipment that is designed to be used solely by professional users. Equipment that is likely to be

used by private households, or by private households as well as by professional users is not equipment for professional use][Specialized equipment that is designed for commercial and business use but not equipment that is considered to be common for use in households.][ E.g., mainframe computers and large copying machines would be professional equipment whereas personal computers, mobile phones and small copying machines would not be equipment for

professional use.]

**Essential key** The originally intended function(s) of a unit of equipment that will satisfactorily enable the equipment to be reused.

**Fully functional** Equipment is fully functional when it has been tested and demonstrated to be capable of

performing at least the essential key functions it was designed to perform.

Other waste Wastes included in Annex II of the Convention.

**Producer** The international and local manufacturer of equipment or the importer of record of new or used

equipment to be placed on the market at first invoice by sale.

**Recovery** Relevant operations specified in Annex IV B of the Basel Convention; recycling operations are

part of this annex.

**Refurbishment** [Creating refurbished or reconditioned equipment, including such activities as cleaning, data

sanitization and (software) upgrading.][Modification of fully functional equipment to increase its performance and/or functionality or to meet applicable technical standards or regulatory

requirements, including through such activities as cleaning, data sanitization and upgrading.]

<sup>&</sup>lt;sup>21</sup> This glossary should take into account the work undertaken by the small intersessional working group on legal clarity and be consistent with the glossary of terms in the revised guidance document on the environmentally sound management of used and end-of-life computing equipment developed by the Partnership for Action on Computing Equipment (PACE) (UNEP/CHW.11/6/Add.1/Rev.1).

### UNEP/CHW/OEWG.9/INF/6/Rev.1

**Repair** Fixing specified faults in equipment [and/or replacing defective components of equipment in

order to bring the equipment into a fully functional condition].

**Reuse** Using again equipment that is not waste, for the same purpose for which it was conceived by

another person, possibly after repair or refurbishment.

Root cause analysis A step-by-step method that leads to the identification of the initial or root cause of an equipment

failure.

**Upgrading** Modification of fully functional equipment by the addition of new software or hardware.

Waste Substances or objects which are disposed of or are intended to be disposed of or are required to be

disposed of by the provisions of national law (Article 2, paragraph 1, of the Basel Convention).

Waste electrical and electronic equipment

Electrical or electronic equipment that is waste, including all components, sub-assemblies and consumables which are part of the equipment at the time the equipment becomes waste.

## [Appendix II: Information accompanying transboundary transports of used equipment falling under paragraph 26 (b)

1. Holder who arranges the transport	2. [Importer	3. Receiving facility (if different from	4. [Carrier <sup>24</sup>		
Name:		importer)] <sup>23</sup>			
Address:	Name:	Name:	Name:		
Contact person:	Address:	Address:	Address:		
Tel.:	Contact person:	Contact person:	Contact person:		
Fax:	Tel.:	Tel.:	Tel.:		
E-mail:	Fax:	Fax:	Fax:		
	E-mail:] <sup>22</sup>	E-mail:	E-mail:		
	3		Means of transport:] <sup>25</sup>		
			4bis. Description of the		
			equipment (e.g. name):		
5. Purpose of the transport: <sup>26</sup>					
Text reflecting the decision	ns taken on paragraph 26 (b	b) will be introduced in this bo	υX		
6. Actual quantity: 7. [Actual date of shipment:] <sup>27</sup>					
8 Countries/States concerned:					
8. Countries/States concerned	l <b>:</b>				
8. Countries/States concerned Export/dispatch		ransit	Import/destination		
Export/dispatch	T		•		
Export/dispatch  9. Declaration of the holder w	To the description of the transport of t	t of the equipment: I declare	that		
Export/dispatch  9. Declaration of the holder w a) the equipment in this transport	ho arranges the transpor rt is equipment that is not o	t of the equipment: I declare	that		
Export/dispatch  9. Declaration of the holder w a) the equipment in this transport involved in the transport and is:	ho arranges the transport is equipment that is not consent to:	t of the equipment: I declare	that		
Export/dispatch  9. Declaration of the holder w a) the equipment in this transport involved in the transport and is:  the producer or a third part	ho arranges the transport is equipment that is not consent to:	t of the equipment: I declare	that		
Export/dispatch  9. Declaration of the holder w a) the equipment in this transport involved in the transport and is the producer or a third part [a third party facility];	ho arranges the transpor rt is equipment that is not o sent to: ty on its behalf;	t of the equipment: I declare	that		
Export/dispatch  9. Declaration of the holder w a) the equipment in this transport involved in the transport and is at the producer or a third part [a third party facility]; [the lessor or a third party	ho arranges the transpor rt is equipment that is not consent to: ty on its behalf; acting on his behalf];	t of the equipment: I declare	that		
Export/dispatch  9. Declaration of the holder w a) the equipment in this transport involved in the transport and is a the producer or a third part [a third party facility]; [the lessor or a third party for the purpose(s) as indicated in	ho arranges the transporent is equipment that is not consent to: ty on its behalf; acting on his behalf]; a block 5 above.	t of the equipment: I declare defined as or considered to be	that		
Export/dispatch  9. Declaration of the holder w a) the equipment in this transport involved in the transport and is at the producer or a third part [a third party facility]; [the lessor or a third party	ho arranges the transporent is equipment that is not consent to: ty on its behalf; acting on his behalf]; a block 5 above.	t of the equipment: I declare defined as or considered to be	that		
Export/dispatch  9. Declaration of the holder w a) the equipment in this transport involved in the transport and is a the producer or a third part [a third party facility]; [the lessor or a third party for the purpose(s) as indicated in	ho arranges the transporent is equipment that is not consent to: ty on its behalf; acting on his behalf]; a block 5 above.	t of the equipment: I declare defined as or considered to be	that		
Export/dispatch  9. Declaration of the holder w a) the equipment in this transport involved in the transport and is: the producer or a third party [a third party facility]; [the lessor or a third party for the purpose(s) as indicated in b) the above information is com  Name:	ho arranges the transport is equipment that is not consent to: ty on its behalf; acting on his behalf]; acting on his behalf]; acting the bese bese bate:	t of the equipment: I declare defined as or considered to be set of my knowledge.  Signature:	that waste in any of the countries		
Export/dispatch  9. Declaration of the holder w a) the equipment in this transport involved in the transport and is: the producer or a third party [a third party facility]; [the lessor or a third party for the purpose(s) as indicated in b) the above information is com  Name:	ho arranges the transport is equipment that is not consent to: ty on its behalf; acting on his behalf]; acting on his behalf]; acting the bese bese bate:	t of the equipment: I declare defined as or considered to be set of my knowledge.	that waste in any of the countries		
Export/dispatch  9. Declaration of the holder w a) the equipment in this transport involved in the transport and is: the producer or a third party [a third party facility]; [the lessor or a third party for the purpose(s) as indicated in b) the above information is com  Name:	ho arranges the transport is equipment that is not desent to: ty on its behalf; acting on his behalf]; n block 5 above. plete and correct to the besent between the besent to:  Date:  DBE COMPLETED BY	t of the equipment: I declare defined as or considered to be set of my knowledge.  Signature:	that waste in any of the countries		
Export/dispatch  9. Declaration of the holder w a) the equipment in this transport involved in the transport and is a the producer or a third part [a third party facility]; [the lessor or a third party for the purpose(s) as indicated in b) the above information is com Name:	ho arranges the transport is equipment that is not desent to: ty on its behalf; acting on his behalf]; n block 5 above. plete and correct to the besent between the besent to:  Date:  DBE COMPLETED BY	t of the equipment: I declare defined as or considered to be set of my knowledge.  Signature:  THE RECEIVING FACILITY	that waste in any of the countries		

<sup>&</sup>lt;sup>22</sup> EU suggests this may not be needed.

<sup>&</sup>lt;sup>23</sup> EU suggests this may not be needed.

<sup>&</sup>lt;sup>24</sup> If more than one carrier, also attach information as required in block 4 for all other carriers.

<sup>&</sup>lt;sup>25</sup> EU suggests this may not be needed.

<sup>&</sup>lt;sup>26</sup> If multiple options apply to the equipment, please indicate them all.

<sup>&</sup>lt;sup>27</sup> EU suggests this may not be needed. Could be replaced with a box asking for a description of the type of equipment moved.

28 COCIR suggests that this may be less relevant for border controls and might be removed.

# Appendix III: Form for recording the results of evaluation and testing of used equipment (paragraph 26 (a))

1. Holder who transport	arranges the		2. Company responsible for evidence of functionality (if different than		3. Carrier <sup>29</sup>	
(responsible fo	or testing):		holder):		Name:	
Name:	<b>9</b> /1	Name:	· · · · · · · · · · · · · · · · · · ·		Address:	
Address:		Address:	Address:		Phone No:	
Contact person	:	Contact pe	erson:		E-mail:	
Tel:		Tel:				
E-mail:		E-mail:				
		5. User or	retailer, [(if differ	ent from	6. [Country of export:	
4. Importer <sup>30</sup>		importer)			or production of the productio	
Name:		Name:				
Address:		Address:			Country of import: 131	
Phone No:		Contact pe	erson:		country of importing	
E-mail:		Tel:				
		E-mail:				
complete and c	[I, the person that conducted the evaluation and testing declare that the results of evaluation and testing are complete and correct to the best of my knowledge.					
Name:	Name: Date:				Signature:] <sup>32</sup>	
I, the holder who arranges the transport of the equipment listed below, hereby declare that prior to export the used equipment listed below was tested and is fully functional. <sup>33</sup> I confirm that this equipment is not defined as or considered to be waste in any of the countries involved in the transport and is destined for direct reuse <sup>34</sup> and not for recovery or disposal operations.						
Name:		Date:		Signature:		
8. Name of the item of equipment <sup>35</sup>	9. Name of the producer (if	10. Identification number (type	11. Year of production (if available)	12. Date of function ality	13. Kind of tests performed and results of test (e.g. indication of full functionality or indication	

<sup>&</sup>lt;sup>29</sup> EU suggests this may not be necessary.

<sup>&</sup>lt;sup>30</sup> EU suggests this may not be necessary.

<sup>&</sup>lt;sup>31</sup> EU suggests this may not be necessary.

<sup>&</sup>lt;sup>32</sup> EU suggests this addition. However, industry questions if this is practicable, in particular if the movement consists of equipment tested by different testing firms.

<sup>&</sup>lt;sup>33</sup> Equipment is "fully functional" when it has been tested and demonstrated to be capable of performing at least the essential key functions they were designed to perform.

Essential key functions are the originally intended function(s) of a unit of equipment that will satisfactorily enable the equipment to be reused.

<sup>&</sup>lt;sup>34</sup> Direct reuse is the continued use of equipment and components by another person without the necessity of repair, refurbishment, or hardware upgrading, provided that such continued use is for the intended purpose of the equipment and components. *Note: To be made consistent with the glossary* 

<sup>&</sup>lt;sup>35</sup> List the equipment for which the information in the boxes 1 to 3 is the same and that is intended to be moved together and identify the names of the equipment such as: PC, refrigerator, printer, TV, etc.

available)	(if applicable)	testing	of defective parts and defect) <sup>36</sup>

<sup>36</sup> Attach details if necessary.

## Appendix IV: Reference material

This appendix contains references to information on functionality testing for certain categories of used equipment (paragraph 28), hazardous and non-hazardous equipment and hazardous components that can be found in such equipment (paragraph 37 bis) and information regarding health and safety aspects for inspections (paragraph 41).

## 1. Functionality testing or evaluation

This section contains references to tests and procedures for functionality tests of electrical and electronic equipment. The examples are not meant to be exhaustive but illustrate procedures as they are applied by some parties or recommended in other guidance documents under the Basel Convention. Testing procedures and protocols for other categories of used equipment are not yet available.

#### References from parties

#### Australia

Criteria for the export and import of used electronic equipment (DEH, 2005). Available on http://pandora.nla.gov.au/pan/51666/20050902-

0000/www.deh.gov. au/settlements/publications/chemicals/hazardous-waste/electronic-paper. html

Annex B of the document contains parameters that may be used when testing functionality of certain types of equipment.

#### **European Union**

Revised Correspondents' Guidelines No. 1 on shipments of waste electrical and electronic equipment (WEEE) (2007). Available on http://ec.europa.eu/environment/waste/shipments/guidance.htm

Appendix 1 to these guidelines contains parameters that may be used when testing functionality of certain types of equipment.

#### Malaysia

Guidelines for the classification of used electrical and electronic equipment in Malaysia. (DOE, 2008). Available on http://www.doe.gov.my/portal/wp-

 $content/uploads/2010/07/ECTRICAL\_AND\_ELECTRONIC\_EQUIPMENTIN\_MALAYSIA.pdf$ 

Paragraph 7 of these guidelines contains parameters that may be used when testing functionality of certain types of equipment.

### Norway

A guide for exporters of used goods (Klif, 2009) by the Norwegian Climate and Pollution Agency. Available on http://www.klif.no/publikasjoner/2516/ta2516.pdf

Example images of criteria on pages 4-8 can be used when evaluating functionality of used goods.

#### References from the guidance documents under the Basel Convention

#### MPPI - Mobile phones

The guidance document on the environmentally sound management of used and end-of-life mobile phones that was adopted at the tenth session of the Conference of the Parties (UNEP/CHW.10/INF/27/Rev.1 contains a number of proposed tests on functionality for mobile phones in its section 5.2.1.4

## PACE - Computing equipment

The guidance document on environmentally sound management of used and end-of-life computing equipment that was adopted at the eleventh session of the Conference of the Parties (UNEP CHW11/6/Add.1/Rev.1) contains in appendix 5 to the annex a set of functionality tests for used computing equipment.

### **PACE - Laptop batteries**

The guidance document on environmentally sound management of used and end-of-life computing equipment that was adopted at the eleventh session of the Conference of the Parties (UNEP CHW11/15) contains in appendix 6 to the annex a set of functionality tests for laptop batteries.

## Basel Convention regional centre for South-East Asia (BCRC-SEA)

Technical Guidelines for 3 R (Reduce, Reuse, Recycle) of End-of-Life Electrical and Electronic Products contains a number of functionality tests for different types of equipment in its annexes. These provide for specific tests for refrigeration systems, twin-tub washing machines, automatic washing machines, TVs and audio systems and PCs. The guidelines can be found at http://www.bcrc-sea.org/?content=publication&cat=2

## 2. Hazardous and non-hazardous equipment and hazardous components that can be found in such equipment

Section IV B of the guidelines contains information about the distinction between hazardous and non-hazardous e-waste. Additional guidance and examples of hazardous and non-hazardous equipment and on hazardous components that can be found in equipment can be found in the following reference material.

#### Switzerland

The e-waste guide developed as part of the "Global Knowledge Partnerships in e-Waste Recycling" programme, initiated by the Swiss State Secretariat for Economic Affairs (SECO) and implemented by the Swiss Federal Laboratories for Materials Science and Technology (EMPA) contains a section on hazardous substances in e-waste: http://ewasteguide.info/node/219

#### Sweden

"Recycling and disposal of electronic waste – health hazards and environmental impacts", report no. 6417, March 2011, Swedish Environmental Protection Agency: http://www.naturvardsverket.se/Documents/publikationer6400/978-91-620-6417-4.pdf

## 3. Health and safety aspects for inspections

Section V of the guidelines provides information for control of transboundary movements of used equipment and e-waste. One of the aspects to be taken into account when carrying out controls is the health and safety of the enforcement agents. Additional information on how to take into account these aspects can be found in the following reference material.

#### Standardization bodies

OHSAS 18001 Standards for Occupational Health and Safety Management Systems is usually available from national standards institutions, e.g. the British Standards Institution: www.bsigroup.com

### **International Labour Organization (ILO)**

The ILO guidelines on occupational safety and health management systems (ILO-OSH 2001) is available on: http://www.ilo.org/safework/info/standards-and-instruments/WCMS\_107727/lang-en/index.htm

ILO has also developed an electronic tool kit on occupational health and safety which includes standards and advice but has to be purchased at a cost of \$395 via:

http://www.ohsas-18001-occupational-health-and-safety.com/ohsas-18001-kit.htm

## Basel Convention regional centre for South-East Asia (BCRC-SEA)

A guidance on occupational safety and health aspects specifically developed as guidance for hazardous materials/waste inspection "Panduan Singkat Pengelolaan Limbah B3 Dalam Rangka Pelaksanaan Konvensi Basel - Segi Keselamatan Dalam Inspeksi Bahan Berbahaya" ("Brief guidance for hazardous waste management under the Basel Convention implementation – safety aspects in hazardous materials inspection") written by D. Wardhana Hasanuddin Suraadiningrat, former Senior Technical Advisor to the BCRC-SEA, in 2008. Since it was initially prepared for the Customs &

Excise Authority in Indonesia, it was written in Indonesian (Malay language)<sup>37</sup> and may need translation. Contact: baseljakarta@bcrc-sea.org.

#### Ireland

Ireland's Health and Safety Authority has on-line advice on developing an occupational health and safety (OHS) management system for a number of different occupations/industries. While waste management is not yet included in its directory, the site contains some useful general videos covering the elements of an OHS system (as per Irish legislation) and risk assessment – see these links:

http://vimeo.com/19383449 - about the online system

http://vimeo.com/19971075 - risk assessment

http://vimeo.com/19970831 - safety statement

The guidance on risk assessment and the development of safety policy and a safety statement could be adapted for use by enforcement agents

### United Kingdom of Great Britain and Northern Ireland

The United Kingdom Health and Safety Executive has online guidance on occupational health and safety relating to the waste industry and specifically to waste electronic and electrical equipment. See these links:

http://www.hse.gov.uk/waste/index.htm

http://www.hse.gov.uk/waste/waste-electrical.htm.

<sup>&</sup>lt;sup>37</sup> EU questions if a document that is not available in an official UN language is useful as reference.

## Appendix V: References

Basel Action Network (2002). Exporting harm. The high-tech trashing of Asia.

Basel Convention Mobile Phone Partnership Initiative (MPPI), 2009a. Guidelines on awareness-raising and design considerations. Revised and approved text 25 March 2009

Basel Convention Mobile Phone Partnership Initiative (MPPI), 2009b. Guidelines on the collection of used mobile phones. Revised and approved text 25 March 2009

Basel Convention Mobile Phone Partnership Initiative (MPPI), 2009c. Guidelines for the transboundary movement of collected mobile phones. Revised and approved text 25 March 2009

Basel Convention Mobile Phone Partnership Initiative (MPPI), 2009d. Guidelines on the refurbishment of used mobile phones. Revised and approved text 25 March 2009

Basel Convention Mobile Phone Partnership Initiative (MPPI), 2009e. Guidelines on material recovery and recycling of end-of-life mobile phones. Revised and approved text 25 March 2009

Basel Convention Partnership on Action for Computing Equipment (PACE) environmentally sound management criteria recommendations

Basel Convention Partnership on Action for Computing Equipment (PACE) guidelines on environmentally sound testing, refurbishment, and repair of used computing equipment

Basel Convention Partnership on Action for Computing Equipment (PACE) Guidelines on Environmentally Sound Material Recovery and Recycling of End-of-Life Computing Equipment

Basel Convention Partnership on Action for Computing Equipment (PACE). Guidelines on transboundary movement of used and end-of-life computing equipment.

J. Huisman (2012). Waste Electrical and electronic Equipment (WEEE) Handbook. Woodhead Publishing.

Schmidt (2006). Unfair trade: e-waste in Africa. Environmental Health Perspectives. Volume 114, number 4.

United Nations Economic Commission for Europe (UNECE), 2009. Recommendations on the transport of dangerous goods. Model regulations, sixteenth revised edition.

United Nations University (UNU), 2007. 2008 review of directive 2002/96 on waste electrical and electronic equipment.

Yu Xiezhi et al (2008). E-waste recycling heavily contaminates a Chinese City. Organohalogen Compounds, volume 70.