

行政院所屬各機關因公出國人員出國報告書
(出國類別：國際會議)

亞太環境技術交換虛擬中心
(APEC-VC)2016 工作會議

服務機關：行政院環境保護署

姓名職稱：程凱麟技士

派赴國家：韓國

出國時間：105 年 10 月 18 日至 21 日

報告日期：105 年 12 月

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摘要

「亞太環境技術交換虛擬中心(APEC-VC)」係 1995 年由亞太經合會(APEC)核准之計畫，其目的為建立環境技術交換虛擬平台，韓國擔任秘書處於 2012 年在 APEC 工業科技工作小組(IST-WG)簡報計畫獲各成員認可，計畫執行至 2017 年。本年度會議由韓國主辦，於 10 月 18 日至 21 日在韓國首爾舉行，出席經濟體包括我國、澳洲、智利、韓國、日本、馬來西亞、泰國、越南及菲律賓等，均贊成 APEC-VC 爭取 2017 年後之延續。

我國將配合後續事務以利推動環保國際事務。預計每月須提供環保新知、法令公告、環保產業訊息或環保技術研究成果共 10 則。為爭取 APEC 相關單位之支持與經費，需各成員共同協助資料庫之更新與成果彙整。APEC-VC 亦面對計畫成效與經費延續問題，此問題可能常見於各官方、半官方組織，需定期檢討相關成效及產出。

原始發起之日本代表同意此計畫且願意在產官學界合作中，竭盡所能與秘書處合作，經濟產業省願給予除財務外之所有協助。韓國秘書處認為須有實體成就才能吸引各政府或組織提供更多穩定資金來源。建議簽署備忘錄，藉由已設立之網站進行各經濟體積極交換資訊，質量兼具，使 APEC-VC 得以延續，並解決亞太區域的環境問題。

首爾與我國各城市經歷垃圾掩埋場的相同問題，早期開發常將掩埋場設於河川旁邊，除廢棄物處理，空氣、水質之污染問題影響更鉅。韓國也是設立垃圾焚化爐來處理幾十年掩埋場累積之廢棄物，實際營運委託代操作業者，同時也利用廠區進行環境教育與國際交流。麻浦環保資源中心為減少民眾抗爭與取得共識，將焚化爐燃燒溫度提升至 850 度以上，再經降溫至 200 度，熱能提供發電使用，廢氣經集塵袋過濾，再經選擇性催化還原法(Selective Catalytic Reduction)及第二道過濾，確保戴奧辛濃度合乎標準，檢測結果以電子看板公告於廠門及網站。

灰渣固化後在廠區即以 10% 之比例製作鋪面使用之紅磚，可降低造價及達到去化之目的。同時垃圾車與一般車輛分道，只在半夜進場，以降低對環境與居民之衝擊。藍天公園係將原有之掩埋場復育，因緊鄰漢江旁，且可遠眺漢江兩岸之市區風光，世界盃足球場等景點也是一覽無遺，並成功復育種植大量芒草及觀賞植物，如今已成功轉型為民眾遊憩之好去處。臺北市的福德坑與山豬窟環保園區應該也可借鏡，達成綠化與生態復育之終極目標。

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一、 會議背景及目的

「亞太經濟合作」(Asia-Pacific Economic Cooperation, 簡稱 APEC) 係 1989 年由澳大利亞總理霍克 (Robert Hawke) 倡議而成立的亞太區域主要經濟諮商論壇, 希望藉由亞太地區各經濟體政府相關部門官員的對話與協商, 帶動該區域經濟成長與發展, 成立時共有 12 個創始成員。

我國於 1991 年加入 APEC, 當時經 APEC 主辦會員體韓國居間協調, 我以 "Chinese Taipei" 名稱與中國大陸及香港在該年同時加入 APEC。目前 APEC 成員除我國外, 尚有澳大利亞、汶萊、加拿大、智利、中國大陸、香港、印尼、日本、韓國、馬來西亞、墨西哥、紐西蘭、巴布亞紐幾內亞、秘魯、菲律賓、俄羅斯、新加坡、泰國、美國及越南總計 21 個會員體, 各會員體均係以「經濟體」(Economy) 身分參與。另尚有「東南亞國家協會」(ASEAN)、「太平洋經濟合作理事會」(PECC) 及「太平洋島國論壇」(PIF) 3 個國際組織為其觀察員。

APEC 是亞太地區最重要的多邊官方經濟合作論壇, 以成員涵蓋地理範圍 (包括東北亞、東亞、東南亞、大洋洲、北美及中南美地區共 21 個全球重要經濟體)、整體經濟力量 (總人口約佔全球 4 成, 國內生產毛額佔全球近 5 成 5, 貿易總額佔全球近 4 成 4) 及組織活動 (最高決策層級達各經濟體元首, 所涉議題幾涵蓋各會員大部分行政部門業務) 而言, APEC 為我國目前實際參與最重要國際多邊機制, APEC 所形成的共識對全球經貿政策及規範具有影響力。

「亞太環境技術交換虛擬中心(APEC-VC)」係 1995 年由亞太經合會(APEC) 核准之計畫, 建立環境技術交換虛擬平台, 韓國擔任秘書處於 2012 年在 APEC 工業科技工作小組(IST-WG)簡報計畫獲各成員認可, 計畫執行至 2017 年。本年度會議由韓國主辦, 於 10 月 18 日至 21 日在韓國首爾舉行, 出席經濟體包括我國、澳洲、智利、韓國、日本、馬來西亞、泰國、越南及菲律賓等, 均贊成 APEC-VC 爭取 2017 年後之延續。我國將配合後續事務以利推動環保國際事務。預計每月須提供環保新知、法令公告、環保產業訊息或環保技術研究成果共 10 則。為爭取 APEC 相關單位之支持與經費, 需各成員共同協助資料庫之更新與成果彙整。APEC-VC 亦面對計畫成效與經費延續問題, 此問題可能常見於各官方、半官方組織, 需定期檢討相關成效及產出。

二、 會議過程及內容重點整理

本次「亞太環境技術交換虛擬中心(APEC-VC)」主辦單位是韓國環境部，實際會議聯絡及辦理事物為其轄下之韓國環境產業技術院(Korea Environmental Industry and Technology Institute，簡稱 KEITI)，為韓國環境部成立之法人，負責推動環保產業及認證、綠色消費、國際合作等。主要行程及內容簡如下表：

日期	行程
10月18日	啟程，自桃園機場(TPE)搭乘班機至韓國首爾仁川機場(ICN)。
10月19日	<ol style="list-style-type: none">1. 於首爾進行亞太環境技術交換虛擬中心 2016 工作會議，出席經濟體包括我國、澳洲、智利、日本、馬來西亞、南韓、泰國、菲律賓及越南，各成員報告 2016 年之辦理情形2. 就 APEC-VC 是否申請持續辦理及工作成果彙整，各成員須達成之目標值進行討論。
10月20日	<ol style="list-style-type: none">1. 參加韓國環保產業生態技術展(Eco Expo Korea 2016)，瞭解韓國環保產業及綠色信用卡等推動成果及實品展示2. 前往麻浦環保資源中心(Mapo Resource Recovery Facility)瞭解首爾垃圾處理與焚化爐營運，及參觀藍天公園，由原本的掩埋場復育整治為首爾市民踏青休閒去處
10月21日	回程，自韓國首爾仁川機場(ICN)搭乘班機至桃園機場(TPE)。

第 1 天(10 月 18 日)抵達韓國仁川機場，仁川機場主要兩大營運航空公司為韓亞航空 ASIANA 及大韓航空 KOREAN AIR，起降十分頻繁，分別使用航廈兩廂，不同航程與載客量，在仁川機場可看見 Air Bus 與波音之各式客機。本次搭乘之班機近乎客滿，機上乘客韓國與台灣旅客都有。到達韓國後，空橋出口螢幕上顯示了歡迎詞彙和出發國、目的國國旗。同時顯示到著和換乘方向。因相近時間到達之班機較多，故在通關時等待時間稍久，等待隊伍中有不少似乎為中國大陸之觀光客，海關人員核對身分資料及詢問入境原因後，前往領取託運行李。

仁川機場距離市區稍遠約 58 公里，較桃園機場與臺北市之距離遠。我國桃園機場出發之航班降落仁川，金浦機場規模較小，松山機場起飛之班機降落金浦機場。AREX(Air Railroad Express)為韓國首爾之機場捷運連結包括仁川機場及金浦機場，2010 年通車，分直達車與每站皆停，直達車自仁川機場抵達首爾市區約需 43 分鐘，目前票價為 8,000 韓幣，比臺北市區至桃園機場之客運稍貴，但若搭乘韓國之機場巴士，則超過 10,000 韓幣。列車大部分為 6 節車廂，直達車為對號座，在車廂前後設有行李置放之空間，可供乘客置放大型托運行李。

第 2 天(10 月 19 日)上午會議於首爾之西佳花園飯店(Best Western Premier Seoul Garden Hotel)舉行，主辦單位是韓國環境部，實際聯絡辦理為韓國環境產業技術院(Korea Environmental Industry and Technology Institute，簡稱 KEITI)，為韓國環境部成立之法人，負責推動環保產業及認證、綠色消費等，成員近 300 人，在許多方面扮演活躍角色，例如改善發展中國家之環境合作，並協助其綜合改善計畫、環保技術之國際合作、環保事業發展、綠色產品與綠色消費。

近年來日益嚴重的全球暖化、資源枯竭、環境安全等問題越來越成為全球亟需解決的問題。KEITI 是環境部下屬的準政府機關，設立目的正是為了通過開發環境技術和培育環境產業來解決及預防環境問題，並通過引導公民綠色生活，達到最終維護環境、發展經濟、為公民的健康和安全作出貢獻。根據企業發展階段提供企業支援服務，利用中小環境企業的創意性技術達到開拓國外市場的目的，同時積極培養環境專業人才，不但能解決中小環境企業面臨的人才難求問題，並提供各種就業機會，促進求職者的就業。為了公民的健康和安全還在積極的推進研究項目和相關事業，同時積極構築與實施環境事故受害賠償等相關制度。同時通過經營環保標章、環境新技術等認證制度，不但有益於綠色及低碳產品普及與擴大市場，並通過提供企業綠色經營支援服務，為推廣綠色生活做出貢獻。

關於成員列表順序，會前聯繫曾發生插曲。出席經濟體包括我國、澳洲、智利、日本、馬來西亞、南韓、泰國、菲律賓及越南，因 KEITI 之聯絡窗口更換，部分文件重新編製，可能直接使用 WORD 內建之排序，因亞太經濟合作(APEC)會議我國之入會名稱為 Chinese Taipei，使用 C 為排序，排在智利之後，與慣例不同。經過來回溝通，提供 APEC 官方網站之會員國排序，已更正無誤。

會員官方名稱	加入時間	經濟體成員
Australia	1989年11月	澳大利亞
Brunei Darussalam	1989年11月	汶萊
Canada	1989年11月	加拿大
Chile	1994年11月	智利
Hong Kong, China	1991年11月	中國香港
Indonesia	1989年11月	印尼
Japan	1989年11月	日本
Republic of Korea	1989年11月	韓國
Malaysia	1989年11月	馬來西亞
Mexico	1993年11月	墨西哥
New Zealand	1989年11月	紐西蘭
Peru	1998年11月	秘魯
Papua New Guinea	1993年11月	巴布亞紐幾內亞
People's Republic of China	1991年11月	中華人民共和國
The Philippines	1989年11月	菲律賓
Russia	1998年11月	俄羅斯
Singapore	1989年11月	新加坡
Chinese Taipei	1991年11月	中華民國（臺灣）
Thailand	1989年11月	泰國
The United States	1989年11月	美國
Viet Nam	1998年11月	越南

會議開場由 KEITI 之國家環境資訊中心 Song 處長先行致詞，雖然屬國際性會議，但處長仍是以韓文致詞，每講完一段後搭配英文翻譯，向各成員國表示主辦單位韓國環境部歡迎之意，也希望 APEC-VC 可以扮演解決亞太地區環境問題

之網絡。也許在我國主辦之環保會議，首長致詞時是否須全程使用英文，應該也是個可以思考的問題。接著由各經濟體代表說明 2015 至 2016 之相關辦理情形，因各成員出席人員之屬性不同，例如我國與泰國、越南出席人員為政府官員，馬來西亞與智利出席人員為學術機構教授，因身分不盡相同，容易造成目標不一致。而成員之間可能需要更多聯繫，以利相關事務之延續及有效推動。

APEC-VC Seoul Workshop 2016

October 19-20 2016, Seoul, Korea

I. Objectives : To discuss on the key issues regarding APEC-VC project, including the extension of the APEC-VC project and future action plans

II. DATE & VENUE: October 19-20th (Wed-Thu) 2016, Seoul , Korea

III. ORGANIZERS

- Hosted by the Ministry of Environment (MOE) of the Republic of Korea
- Organized by the Korea Environmental Industry and Technology Institute (KEITI)
- Participants: Representatives from APEC-VC Member Economies

No.	Economies*
1	Australia
2	Chile
3	Japan
4	Malaysia
5	Republic of Korea
6	Chinese Taipei
7	Thailand
8	The Philippines
9	Vietnam
10	Asia Pacific Network

IV. SCHEDULE OVERVIEW

DATE	TIME	EVENT	VENUE
Oct 18 th (TUE)	-	Arrival to Korea	Incheon International Airport → Hotel
Oct 19 th WED)	10:00-20:00	APEC-VC Workshop	Hotel
Oct 20 th (THU)	10:00-20:00	Visit ECO EXPO 2016 and Environmental Facilities	Seoul
Oct 21 st (FRI)	-	Departure from Korea	

V. PROGRAM

TIME	EVENT	VENUE	REMARKS
Oct 18th (Tue)			
-	Arrival to Korea	Incheon International Airport→Hotel	Seoul Garden Hotel
Oct 19th(Wed)			
10:00-10:20	Opening Remarks - Introduction of Participants - Announcement - Group photo	Lily Hall	2 nd Floor Seoul Garden Hotel
10:20-10:35	Coffee Break		
10:35-11:50	Presentation Session I - Report of APEC-VC and environmental technology information exchange activities by each economy		
11:50-12:00	Presentation Session II - Report of APEC-VC Secretariat		
12:00-13:00	Lunch		
13:00-14:45	Discussion Session I - Discussion on the extension of APEC-VC project		
14:45-15:00	Coffee Break		
15:00-16:20	Discussion Session II - Discussion on the future direction and activities of APEC-VC project		
16:20-16:30	Closing Remarks		
Oct 20th(Thu)			
10:00-11:30	Eco-Expo 2016	Coex	Depart at 10:00 from Seoul Garden Hotel
11:30-13:00	Lunch	Coex	
13:00-16:15	Mapo Resource Recovery Facility and Sky Park	Mapo	
Oct 18th (Tue)			
-	Departure from Korea	Hotel→Incheon International Airport	

我國就資料開放與資料交換平台之辦理成果，以及介紹環境即時通 app，以儀錶板及不同顏色呈現空氣品質與河川水質等環境品質資訊，並整合災害應變及颱風、土石流、淹水等警報，提供環境全方位資訊，滿足民眾環境知情權。

會議第一階段最後由 APEC-VC 韓國秘書處 KEITI 人員報告，雖然已達成相關成就，韓國表示在推動這項計畫上仍有重大障礙，例如預算限制。此計畫須要有實體成就，才能吸引會員經濟體之政府或組織，提供更多穩定的資金來源。因此，在 APEC-VC Project 之期限剩一年的情況下，作為秘書之職的韓國提議會員經濟體做出官方協議，以藉由 APEC-VC Gateway 提供資料庫到 2017 年年底。考量本計畫歷程及各會員能力，亞太區域環境議題之實際且積極的資訊交換，可以藉由 Gateway 網站進行。此協議的細節與條件，如每個經濟體所提供的資訊數量及類型，須透過所參與之經濟體討論而做出一致結論。APEC-VC 期盼且希望各會員經濟體積極且負責地提供資訊，在 Gateway 網站上創設資料庫而做出之協議，產生質量兼具的結果，使 APEC-VC Project 得以實行，並解決亞太區域的環境問題。

日本之意見為 APEC-VC Japan 向日本經濟產業省報告:在本次工作會議所討論內容、如何執行及目前 APEC-VC Japan 所面臨的情況(1) APEC-VC Japan 同意此計畫且竭盡所能與產官學界之專家合作。(2)從 APEC Fund 取得資金就目前是困難的。(3)經濟產業省表示，雖然不能夠提供財務上的支援，但願盡力給予其餘幫助。

延續 APEC-VC 計畫的議題上，與會人員已陳述於會議前提交的意見書中。馬來西亞 APEC-VC 也同意延長，且其建議對於營運此計劃的挑戰(如缺少實際運作的計劃、每個經濟體之聯絡人員頻繁的更換極有限的預算)作進一步的討論。此外，智利 APEC-VC 同意延長，且表達其對於缺乏財務資源的關注。越南 APEC-VC，其強調越南對於環境科技與日俱增的需求，也同意延長。此外，若大多數會員經濟體希望延長此計劃，中華台北 APEC-VC，願意使用該經濟體之公開資料與其他國家分享相關知識與經驗，也同意此計劃之延長。泰國 APEC-VC 表達了對於此計劃之延長的支持，也同意提供該經濟體之公開資料。澳洲 APEC-VC 也對此計劃之延長抱持正面的看法，且建議將計劃目標與全球的行動

結合，如 UN SDGs。菲律賓 APEC-VC 也同意延長此計劃，且要求各會員國為了維持此計劃做出更多努力。韓國 APEC-VC 也表示其對於此計畫延長之意願，且提議要在此計劃中產生一些實體上的成果，以提高政府給予資金補助的意願。

所有會員皆同意 APEC-VC 計劃之延長，其討論在環節三中繼續進行，在環節三的討論主要著重在韓國 APEC-VC 對於此計劃未來活動之提案。韓國 APEC-VC 建議，藉由積極地建立在網頁上的資料庫及在特定事項上(如類別、項目數等關於在 Gateway 網站上傳資料之事項)提出官方協議，重新活絡 APEC-VC Gateway。韓國 APEC-VC 堅持，只有當各會員皆上傳並分享其經濟體的資料，在 2014 年所建立的 APEC-VC Gateway 網站，才可以作為全球環境資訊交換及技術轉移的中心。因此，會中開始對於特定事項之協議進行討論。與會人員決定維持 APEC-VC Gateway 網站的資料庫類別，其為研究及發展、政策發展、科技及產業推動及能力建構。此外，在資料庫的年度項目數目標上，各會員經濟體同意每年設立 1,000 個項目，其平均每個有參與之會員經濟體，每年設立 110 個項目。

秘書處草擬相關進行時程如下：

2016

12 月：對協議做最終修訂並確定最終協議之草案(即 MOU)

2017

1 月：協議確定並開始建立資料庫。

5 月：秘書處編製並提交計畫延長之 PPSTI 報告，需由所有會員簽署支持。

6 月：確認 APEC-VC 秘書處所引導之資料庫建設之進度。

10 月：舉辦 2017 APEC-VC 工作會議。

12 月：對 APEC-VC 秘書處所引導之資料庫建設做最終確認。

三、參加會議心得及建議

針對參與此次會議之心得與建議進行重點整理：

- (一) 各經濟體代表之屬性不盡相同，例如我國與泰國、越南出席人員為政府官員，馬來西亞與智利出席人員為學術機構教授，因身分不盡相同，容易造成目標不一致。而成員之間可能需要更多聯繫，以利相關事務之延續及有效推動。韓國環境產業技術院為韓國環境部成立之法人，負責推動環保產業及認證、綠色消費等，成員近 300 人，在許多方面扮演活躍角色，例如改善發展中國家之環境合作，並協助其綜合改善計畫、環保技術之國際合作、環保事業發展、綠色產品與綠色消費。
- (二) 首爾與我國各城市經歷垃圾掩埋場的相同問題，早期開發常將掩埋場設於河川旁邊，除廢棄物處理，空氣、水質之污染問題影響更鉅。韓國也是設立垃圾焚化爐來處理幾十年掩埋場累積之廢棄物，實際營運委託代操作業者，同時也利用廠區進行環境教育與國際交流。
- (三) 麻浦環保資源中心為減少民眾抗爭與取得共識，將焚化爐燃燒溫度提升至 850 度以上，再經降溫至 200 度，熱能提供發電使用，廢氣經集塵袋過濾，再經選擇性催化還原法(Selective Catalytic Reduction)，及第二道過濾，確保戴奧辛濃度低於 0.01TEQ/N，檢測結果以電子看板公告於廠門及網站。灰渣固化後在廠區即以 10% 之比例製作鋪面使用之紅磚，造價可降低三分之一。同時垃圾車與一般車輛分道，只在半夜進場，以降低對環境與居民之衝擊。
- (四) 藍天公園係將原有之掩埋場復育，因緊鄰漢江且可遠眺漢江兩岸之市區風光，世界盃足球場等景點也是一覽無遺，並成功復育種植大量芒草及觀賞植物，如今已成功轉型為民眾遊憩之好去處。我國以前都會區例如臺北市的福德坑與山豬窟環保園區應該也可借鏡，達成綠化與生態復育之終極目標。

(五) 首爾機場鐵路乘車之平穩度尚稱舒適，回想我國於 1996 年採購之推拉式(push-pull)自強號 E1000 電力車頭與車廂，由韓國現代得標，但因為車頭與車廂實際由不同廠商生產，動力系統又再分包，車頭與車廂整合度不夠與加速不協調，且後來現代鐵道部門獨立改組，導致我國求償無門。到達首爾站後轉乘首爾地下鐵，大站之指標與動線尚稱清楚，但小站之英文標示就並非到處都有，且部分路線之車輛較舊，故未有電子看板，到站廣播以韓文為主，故搭到較舊車輛則感到較不方便，反而是臺北捷運雖然有許多批次採購之電聯車，例如 1993 年最久之 301 型高運量列車均已完成更新，這方面的硬體我國之乘客友善度比首爾更高。且部分轉乘路線須長距離移動，對肢體障礙者或是攜帶大型行李之友善度較低。部分地鐵站之月台屬分離式，要往反方向之月台指示不太清楚，後來發現要走到月台盡頭才有個很小的樓梯。

比較大眾運輸友善度，日本東京之各車站漢字、英文與各站編號均標示明確，轉乘指示清晰且無須出站，且清楚標示無障礙空間，且搭配官方開發之手機 app，到站時間轉乘資訊都十分清楚，即使不安裝 app，使用 google map 規劃亦可快速抵達目的地。我國臺北、新北之部分捷運路線尚有改進空間，但我國車體均已更新「車頭目的地」、「車側目的地」、「車內到站顯示器（可顯示時間及列車到站開門方向）」等，顯示資訊及廣播比首爾部分較舊車輛完整，轉乘之動線設計亦較友善，建議以使用者為出發點更全面提升友善度。

(六) 韓國在將近 600 年前頒布訓民正音，利用輔音與元音，使得韓國可以使用拼音文字。經過政權的演替及時代演進，目前通用的為拼音文字之韓文。除了機場或是人潮較多之地鐵站，一般商店及路標較少出現漢字。當走在首爾街頭看到韓國人民抗議，卻用著寫有中文之布條，令筆者好奇。細讀發現是元太科技購併 Hydis 公司之勞資問題。2001 年，

Hydis 從韓國現代集團 Hynix 中獨立分割出來，主要擁有 TFT-LCD 液晶顯示器、EPD 電子紙技術，並擁有廣視角專利技術(Fringe Field Switching, FFS) 的面板工廠。

2003 年現代集團決定出售 Hydis。當時韓國政府欲拉近韓國與中國，促進經貿往來，鼓勵中國資本入主韓國企業，促成中國京東方公司入主 Hydis。京東方接手的 3 年多當中，從不投資在研發和生產設備更新，不僅透過 Hydis 的專利技術賺取使用費，也派遣 Hydis 的數百名工程師到中國協助新設工廠，更透過資料庫整合方式，非法取得 4 千多件關鍵技術。在北京工廠新設完畢並取得關鍵技術，待 Hydis 無利用價值後，2006 年 9 月宣布破產，600 名員工因而失去工作。

破產後的 Hydis 尋找新買主，2008 年元太科技正式買下 Hydis。工會意識到 Hydis 的價值在於擁有的廣視角技術，透過法院與元太科技達成未來接手後不得賣斷廣視角技術之協議。元太科技因 FFS 廣視角技術專利授權，每年可達十幾億新臺幣之盈餘。但因韓國廠生產設備較落後老舊、無法與同業相比，不斷虧損，須關閉生產線以止血。但韓國員工表示元太科技凍結技術開發和設備投資，反以設備老化理由關廠裁員。方可能因隔閡及文化差異缺乏良好溝通，導致有韓國員工輕生，雖然已付出近七億元新臺幣之資遣及關廠費用，仍陷入進退失據之僵局。

(七) 韓國之民族性似乎較為強悍，在地鐵站及街頭或是光化門廣場皆有遇見陳情抗議之民眾。由於韓國遭受過殖民統治及飽受戰亂，中國與日本曾多次於朝鮮半島發生衝突，例如明朝萬曆二十年至二十六年間日本豐臣秀吉曾數次入侵朝鮮半島，清朝最激烈之甲午戰爭，至第二次世界大戰止，韓國的許多古蹟及建築遭受戰火波及嚴重。1968 年朴正熙執政，重建被破壞的門樓，並把光化門移回原位置附近，韓文「光化門」(광화문)匾額也是朴正熙題寫的。但當時僅是用鋼筋混凝土重建城樓，2006 年韓

國政府拆除新光化門，依歷史原貌採傳統工藝修復重建，並移回最初位置，城樓上「光化門」匾額恢復漢字。韓國文化遺產廳在 2010 年完成 45 個月的光化門復原工程，2010 年 8 月 15 日，韓國光復六十五周年紀念，由總統李明博按鈕開啟新門。光化門恢復 1865 年景福宮重建時的樣子，東、西側守門將廳等六座附屬建築也得到修復。光化門區域除韓國青瓦台外，還有韓國外交部、首爾市政府、美國駐韓大使館、日本大使館、及其他各國使館。

光化門廣場重建過後，前方有寬廣之人行道與名將李舜臣、世宗大王之雕像。朝鮮世宗（1397 年－1450 年），朝鮮世宗莊憲大王、朝鮮莊憲國王，李氏朝鮮的第 4 代國王，1418 年至 1450 年在位。名諱李禔，字元正，廟號世宗，明朝賜諡號「莊憲」。在位期間，發明了訓民正音，對韓國之後的語言和文化發展帶來深遠影響。世宗時期朝鮮的科學技術得到迅猛發展。世宗下令讓人整理朝鮮半島各地的農耕技術，並編定成書，以幫助農民提高農業產量。1429 年在世宗監督下寫成的《農事直說》是朝鮮第一部農書，記錄了種植、收穫、播種和土壤處理等農業技術。世宗還根據朝鮮的經濟狀況，調節農稅。使農民可以用心耕作，不用擔心農民稅。宮廷儲糧有盈餘時，世宗還會將餘糧發放給窮人，後世的韓國史學家通常都尊稱他為世宗大王。

李舜臣（1545 年－1598 年），字汝諧，號德水，朝鮮京畿開豐人，李氏朝鮮時期名將，諡號忠武，死後追贈領議政，1604 年朝鮮宣祖追封其為孝忠仗義迪毅協力宣武功臣，同列者有權慄和元均，加贈德豐府院君。日本入侵朝鮮時期，李舜臣數次成功的在海上戰術性的教訓了日本人。改進了龜船，在近海騷擾日本朝鮮征伐軍的海上供給，於國家即將完全淪陷的時刻，讓日本知道朝鮮還是有一支抵抗力量的存在。鳴梁大捷和閒山島大捷是李舜臣最負盛名的兩場海戰。1598 年，李舜臣在露梁

大捷中配合明軍水師作戰時，與明軍鄧子龍將軍一起擔任伏兵角色。日軍失敗後向外突圍時在觀音浦遭遇前來封堵的李舜臣和鄧子龍。兩位將軍不幸雙雙遇難，死後被朝鮮民族譽為民族英雄。

由於有民眾抗議，廣場上駐定點與路口皆有警員站崗。韓國也曾經過多次軍事政變、政治暗殺及民主化運動等，回國後不久看到新聞報導光化門廣場聚集之抗議民眾達數十萬人，不禁有滄海桑田之感。

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四、 出國期間相關照片



圖 1、APEC-VC 會場



圖 2、各國與會來賓於博覽會 KEITI 攤位前合照

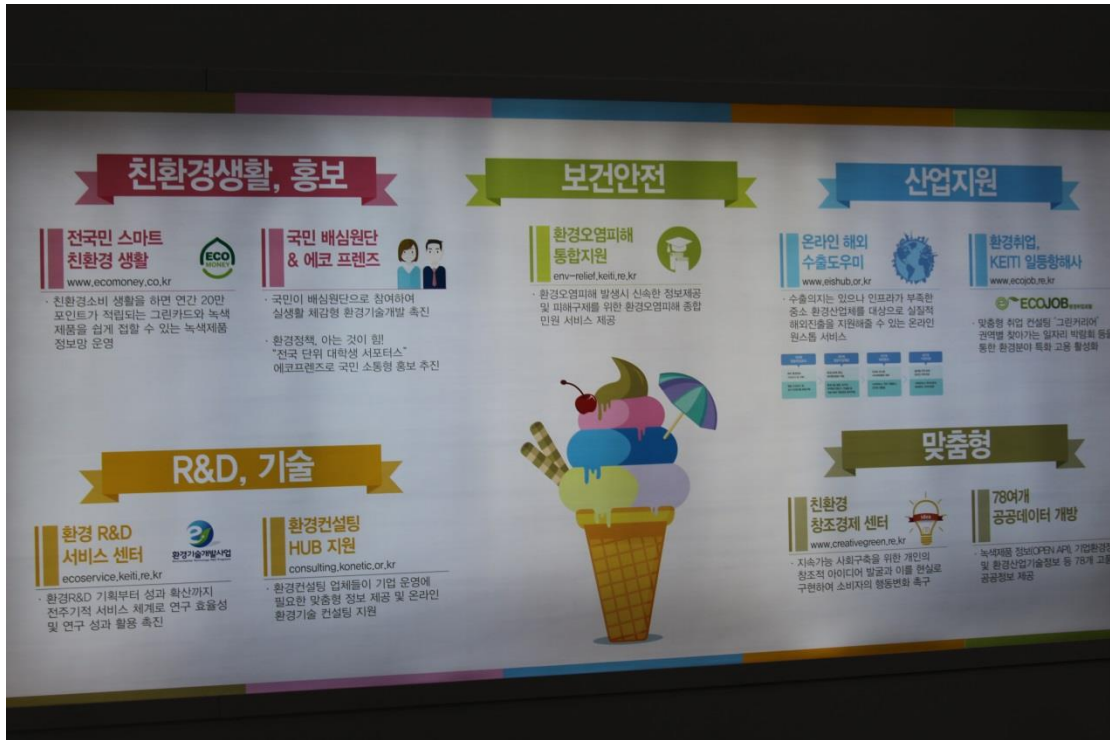


圖 3、KEITI 攤位環保事業解說海報



圖 4、氫動力燃料電池車輛



圖 5、藍天公園之原址掩埋場

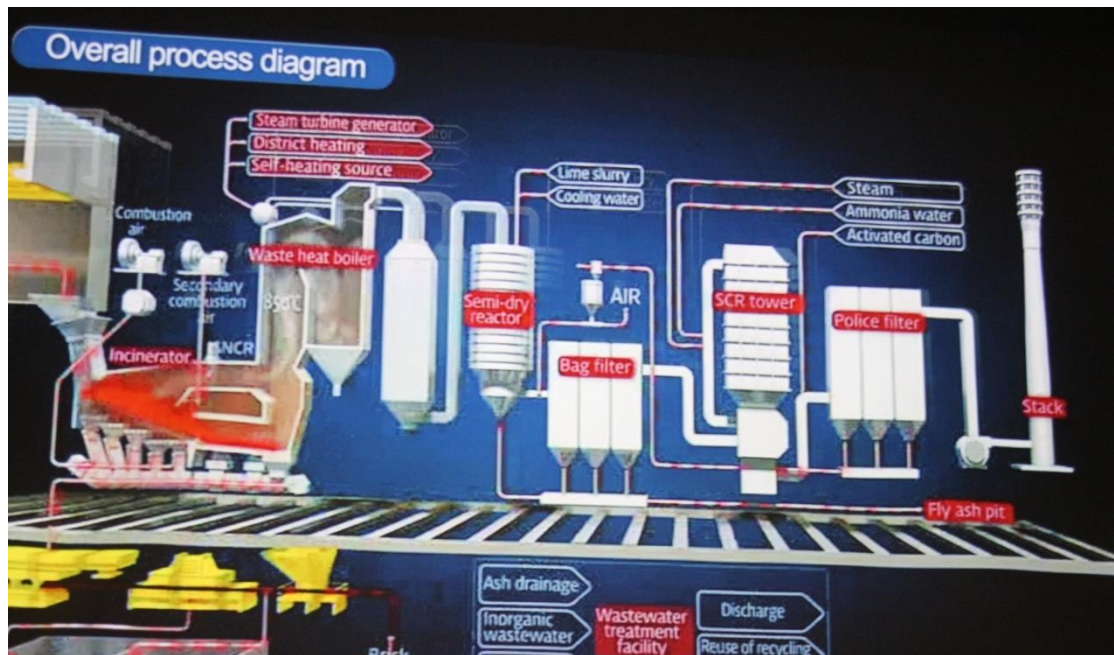


圖 6、焚化爐之操作流程



圖 7、焚化爐之氣體污染物監測



圖 8、焚化爐抓斗



圖 9、藍天公園之復育成果

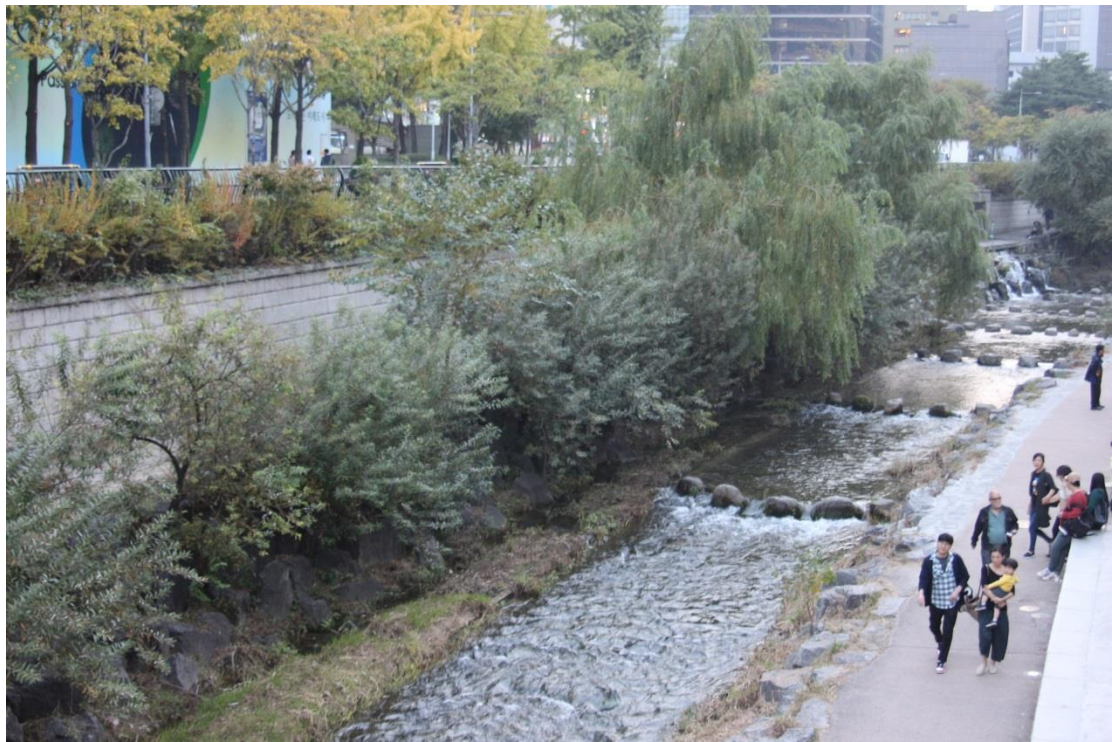


圖 10、清溪川現況



2016 APEC-VC Seoul Workshop

The Process of EnviroCloud in Taiwan

Kai-Lin Cheng
Environmental Protection Administration
Taiwan
Oct. 2016

-
- Introduction
 - EnviroCloud missions
 - Open data platform
 - Environment Info Push App
 - Conclusion



Taiwan's Environment

- ◆ Situated at the western edge of the Pacific Ocean
- ◆ Straddling the Tropic of Cancer
- ◆ Blessed with splendid mountains, rivers and a diverse ecosystem
- ◆ To improve environmental quality, the EPA was established on August 1987, a milestone in Taiwan's environmental protection



3

Environmental Load



Taiwan's Environmental Load Compared to Other Countries				
Density (per km ²)	Taiwan	US	Japan	Germany
		multiples		
Population	648	19.8	1.9	2.9
Vehicles	591	22.7	2.5	3.9

Sources : <http://www.moi.gov.tw>, <http://www.prb.org>, <http://faostat.fao.org> (population, land area);
<http://www.motc.gov.tw> (vehicles); <http://faostat.fao.org> (pigs);
 Data year for population: all countries, mid 2015; Data year for vehicles: Taiwan, 2015; Japan and Germany, 2014; US, 2013



4

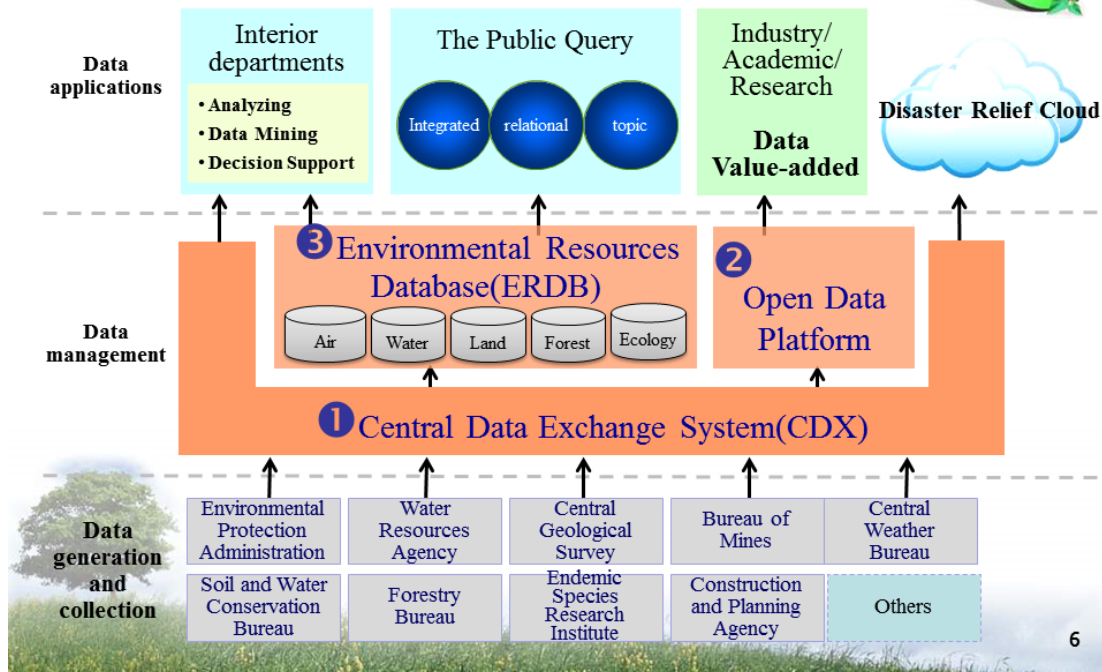
EnviroCloud missions



Integrate National Environmental Data	Measure the Value of Data	Promote Data Applications
<ul style="list-style-type: none"> • Use emerging information technology • Implement quality assurance • Implement data exchange 	<ul style="list-style-type: none"> • Build a sharing platform • Develop integrated data analytics 	<ul style="list-style-type: none"> • Follow open government data policy • Promote applications of environmental data

5

The Architecture of EnviroCloud



6

Open Data Platform



7

Enhancing Open data quality



Environmental Open Data Cloud Services

Rank	Top5 Visiting Rate of Open Data
1	Hourly PSI
2	Real-time UV index data
3	10-minute rainfall data
4	Air quality forecast data
5	Basic information of UV monitoring station



Application Case



8

Environment Info Push App



- Display in gauge and different colors, users can understand how serious it is, without knowing the definition of those indices.



9

Environment Info Push App



- Integrate indices to show real-time info, such as PM2.5, PSI, UVI, RPI, weather forecast and latest news or emergency alerts, like typhoon, mudslide, flood, earthquake, heavy rain, sent to users' devices.
- Geospatial World Excellence Awards 2016 by Geospatial World Forum



10

Conclusions



- **Sharing Taiwan's environmental experiences and technologies**
 - Working with the USEPA to promote the **International Environmental Partnership (IEP)** to assist in regional environmental capacity building
 - Over 40 countries have participated in environmental education, city clean air, atmospheric mercury monitoring, climate change adaptation



- We will continue to **participate in international environmental affairs and comply with international conventions** responsibilities as a member of the global village
- Taiwan **urges the international community to support its participation in international environmental conventions** so that it can share with the world its stories and contribute more to the protection of the planet



附件2、 各經濟體意向書



Chinese Taipei's Position Regarding the Extension of the APEC-VC

APEC-VC was approved as a formal APEC joint research project in April 1997.

Since then, it has made an outstanding contribution toward global environmental protection.

We have always actively participated in every field and are willing to share our experience with all members.

If the majority of members support the extension of APEC-VC Project, we will be glad to see its extension.

Sincerely yours,



Hung Teh Tsai
Director General
Department of Environment Monitoring and Information

Position Paper on the Extension of APEC-VC Project

Korea Environmental Industry and Technology Institute

APEC-VC Korea

Both the Ministry of Environment of Republic of Korea (ME) and the Korea National Environmental Information Center (KONETIC) at Korea Environmental Industry and Technology Institute (KEITI) have been engaging in the APEC-VC Project since 1999. Actively participating in the APEC-VC activities, KONETIC has been attending the APEC-VC annual workshop since 1999 almost every year and has established APEC-VC Korea website in 2003. With the annual budget of 70,000 USD every year from the Korean government, KONETIC provides databases and information related to environmental technologies and industry every year to the APEC-VC Korea website.

On behalf of the Ministry of Environment of the Republic of Korea, KONETIC is also the host of the APEC-VC Secretariat from 2013 to 2017. After taking on the role of the Secretariat, it has established a five-year Roadmap for APEC-VC Project, hosted the annual workshop and attended the PPSTI meetings every year. One of the major accomplishments of APEC-VC Korea as the Secretariat was obtaining funding from APEC PPSTI in 2013 for the creation of APEC-VC Gateway. With the APEC fund of 70,000 USD, the APEC-VC Secretariat hosted two workshops and launched the APEC-VC Gateway website in 2014 which merged the VC websites of member economies into one single site.

Despite these achievements, APEC-VC Korea also acknowledges that there are significant barriers in promoting this project, such as, budget restraints. APEC-VC Korea strongly insists that there must be a tangible outcome through this project to appeal to the member economies' governments or organizations for a more stable funding source. As a result, with one more year left until the expiration of the APEC-VC Project, APEC-VC Korea, as the Secretariat, proposes the member economies to conclude an official agreement for providing database through the APEC-VC Gateway until the end of 2017. APEC-VC Korea believes that, considering the history of the project and the capacity of its members, actual and active exchange of information on environmental issues in the Asia Pacific region can take place by utilizing the already established Gateway website. The details and conditions of the agreement, such as the amount and types of information provided by each economy, must be agreed upon by the participating economies through ample discussion. APEC-VC expects and hopes that the agreement of member economies to provide information and create databases on the Gateway website, both actively and with responsibility, will result in both quantitative and qualitative outcomes that can contribute to making the APEC-VC Project viable as well as solving environmental problems in the region.



CeTeCáncer
CENTRO DE TECNOLOGÍAS PARA EL CÁNCER

Dear Jaeyeon Choi
Korea Environmental Industry & Technology Institute
National Environmental Information Center

October, 12 2016

Regarding your information related to new applications to continuous de APEC VC activities, as you now APEC VC Chile since 1997 has always subscribe this kind of applications. Thus I compromise myself to get the Chilean official support to the new application as soon to be ready. The official document will be subscribed by the University of Chile, Faculty of Medicine.

I wish that this initiative be successful

Kind regard,

Dr. Lionel Gil H.
Professor Faculty of Medicine
University of Chile
Coordinator of APEC-VC Chile.

Centro Virtual APEC para el Intercambio de la Tecnología Ambiental. Chile,
Facultad de Medicina, Programa de Biología Celular y Molecular, ICBM
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APEC VC: The Project Extension

Asia Pacific Economies Cooperation (APEC) Virtual Centre (VC) is an approach to share exchange environmental technology information provided by various national and regional members of APEC over the internet. APEC VC is developed to promote the exchange of environmental business and technology transfer to the developing countries, with a goal of contributing to the preservation and restoration of the environment within the APEC regions as well as around the globe. APEC VC was approved as a formal APEC joint project at the Osaka APEC meeting in 1995. In 1996, Supporting Committee for APEC Virtual Centre for Environmental Technology Exchange was established in Japan, and in 1997 APEC Virtual Centre Japan began its operation.

Malaysia has involve in the APEC VC since 2006. The Institute for Environment and Development (LESTARI), The National University of Malaysia were given a mandate by the APEC VC as a hub for environmental technology information to enhance the collaboration and linkages with all related research institutes, government agencies, private sectors and NGOs in order to get as much as possible information on environmental technologies.

In 2014 APEC-VC Korea has done a very significant initiative as a secretariat of APEC VC by heading the initiative of the development of the single entry point. It is a successful development which reflecting the objective of APEC VC to share and strengthen the capability of information sharing among the APEC countries.

This initiative could be extended with a proper action plan and expected output in order to make sure all the objectives has been achieve. Stated below are some of the limitations or challengers faced by APEC VC:

1. The involvement of countries in workshop due to the limitation of the budget.
2. The changes of resource person/representative of countries.
3. Lack of a practical working plan for representatives to take actions.
4. The focus of APEC VC to strengthen the information sharing via online should be given the priority.

All the challengers stated above are very critical to be solved. It needs full commitment from all parties to make sure the aspiration of APEC VC establishment.

Nik Mohd Noor Faizul Bin Md Saad
APEC VC Malaysia.

Thailand 's Position towards the extension of the APEC-VC project

The APEC-VC Thailand has been launched since 1999 under the responsibility of the Department of Environmental Quality Promotion (DEQP). Now DEQP is concerned on the eco market issues. The APEC-VC Thailand will take an important role as an Information Center and a network for Eco Market in Thailand. The government's policies towards the success of Eco market consist of the following:

1. Encourage the people to use Eco product.
2. Reduce Foam and Plastic.
3. Promote clean technology in the process of production.

Encourage the people to use Eco product.

APEC-VC Thailand has promoted the Mobile Application "DEQP Green Card" which was developed in 2015 to vender, department stores and customers. Information collection for Eco products directory is more important especially updating the information of each eco product every year, as well as will make the efforts to increase the proportion of documents and information on Eco market website in Thailand and Portal APEC-VC website in English language.

Reduce Foam and Plastic.

In Thailand, the major role of government for Environmental preservation is How to reduce foam and plastic which are used for food containers. A lot of foam and plastic bags are used in the department stores and the open markets. On 2015, Our department had launched the campaign "No plastic bags every 15th of each month. Many Department Stores and a lot of people had joined this campaign. Now, the date of campaign had been changed from every 15th of each month to every Wednesday. The people who do not use the plastic bags every Wednesday will receive some points from the stores.

Promote Clean Technology in the process of production.

Since, many Environmental technology are related to industrial sector therefore, the APEC-VC Thailand needs to create close partnership with the industrial sector, both from government and private organization. Now, APEC-VC Thailand had cooperated with the federation of Thailand industrial to introduce the clean technology for industrial sectors. The purposes are to reduce CO₂ in their production process and to certify carbon footprint. However, some of this technology still needs information support and training from APEC-VC partners.

Finally, The APEC-VC Thailand is willing to support every available and appropriate clean technology in order to sustain the goal of preserving the world for the next generations

Position Paper: APEC Virtual Centre for Environmental Technology transfer

APEC-VC Australia

Introduction & background

The Internet has revolutionised the way information is disseminated throughout the world. The increased use of the Internet in the developing and developed world has resulted in more and more people gaining faster access to more information than ever before. With continued interest in the development of Internet information databases throughout the APEC (Asia Pacific Economic Cooperation) region, the economy of Japan unveiled a new website called the APEC Virtual Centre (VC) for Environmental Technology Exchange at the 9th APEC Industrial Science and Technology Working Group in Mexico City during September 1995. The original objectives of the APEC-VC concept were outlined at this first working group meeting:

- Work towards greater cooperation and support in the effective promotion and use of environmental technologies in the APEC region.
- Encourage and support the identification, exchange of best practice environmental methods.
- Assist developing economies achieve the goal of trade Liberalisation and investment in environmental goods and services through training programs and workshops.
- Facilitate improved communication and information exchange between the APEC VC member economies.
- Encourage and support research into important environmental issues in the APEC region.

Since its inception in 1995 the APEC-VC has been an officially sanctioned project under the auspices of APEC Policy Partnership on Science Technology and Innovation (PPSTI) (formerly the Industrial Science and Technology Working Group). This year marks the project's 21st year of operation. Its success can be attributed to the strong network of APEC economies committed to addressing the needs of environmental technology transfer throughout Asia and the Pacific. Moreover, the commitment shown by the Japanese Secretariat, and more recently by the Korean Secretariat, has ensured the APEC-VC's continued success.

Summary of recent workshop proceedings

A single entry point (www.apec-vc.com) on environmental technologies was launched at the 2014 APEC-VC Workshop in Malaysia. The architecture of the APEC-VC Gateway website was outlined at this workshop. In keeping with the *four pillar approach*, as outlined in the APEC-VC Road Map, four categories have been developed under the "umbrella" category of "Information Sharing". These are:

- Research and Development
- Technology Promotion
- Policy and Economic Development and
- Capacity Building.

At recent APEC-VC workshops, discussions have focused on the issue of securing future funding with greater emphasis on making respective governments more aware of the importance of the project in

addressing the issues of poverty reduction and sustainable growth in the Asia-Pacific region. APEC-VC Delegates emphasised a number of key priority objectives for the expansion APEC-VC project moving forward. These include, but are not limited to:

- A strong focus on strengthening capacity building for developing economies in the area of environmental technology transfer. Delegates agreed that the APEC-VC Gateway could be used to demonstrate the benefits of capacity building projects more broadly (fourth pillar).
- The need for greater monitoring of market trends; green technology certification and technology verification programs.
- The development of a curriculum for Universities to teach methods in applied environmental technologies (i.e. technologies for sustainable development and to improve resilience – mitigation and adaptation to climate change).
- Improve language translation capabilities.
- Address problems associated with financing of environmental technology transfer between developed and developing economies.
- Improve policy, finance and regulatory capacity for technology transfer and innovation.
- The APEC-VC should seek to initiate better collaborative arrangements with other networks working on similar goals and initiatives.

Future goals & capabilities

The year 2016 presents many opportunities to extend the work of the APEC-VC. The central objectives of the APEC-VC align strongly with new post-2015 development agenda as outlined in the Sustainable Development Goals (SDGs). In looking towards the future directions of the group, it is important to understand the work of the organisation within the APEC context, as well as more broadly under the Sustainable Development Goals and transition towards Green Growth.

As a member of the UN Global Compact, Sustineo (<http://sustineo.com.au/>) is committed to demonstrating corporate leadership in progressing sustainability development initiatives across the economic, social and environmental domains. Sustineo is experienced in working with APEC across a broad range of areas relevant to the work of the APEC-VC in the next iteration of the program.

- **APEC, Independent Assessment of the PPSTI.** Sustineo assessed the effectiveness and efficiency of the PPSTI, highlighting the important work of the group in building connections between research institutions and facilitating research and development activities. Sustineo also noted the on-going challenges of meaningfully with 'innovation' and industry stakeholders.
- **APEC, Regulatory Reform – Case Studies on Innovation.** Sustineo assessed the impact of specific regulations on innovation across a three APEC case studies: utility patents in Korea, pharmaceutical clinical trials in Malaysia, and urban water supply and re-use in Singapore and Australia. The report that investigated the linkages between regulatory reform, innovation and economic capacity building. Sustineo distilled key lessons for other relevant economies in relation to improving their performance in innovation and uptake.
- **APEC, Case studies on structural reform – Telecommunications Testing and Certification Services in Chinese Taipei.** Sustineo assessed the impact of the APEC Telecommunications Mutual Recognition Agreements on the testing and certification services related to telecommunications technology. Sustineo highlighted the support the measures made of export industries, and identified lessons learn for other MRAs and technology export.

- **ASEAN, Supporting research and dialogue in consumer protection.** Sustineo conducted a large scale research project to build a knowledge base related to consumer protection in the region. Focused on identifying issues related to protecting consumers across 10 ASEAN Member States with diverse legislative and policy platforms, the research surfaced key issues related to cross-border trade of products, mechanisms for ensuring quality in traded products and the importance of considering sustainable consumption and production requirements in the context of the SDGs and Green Growth agenda.

Our experience in the provision of services in research, policy and regulatory advice, monitoring and evaluation and technical advisory services, gives us a good understanding of the need and demand for the type of work and services that APEC-VC is providing. We are excited by the opportunities for APEC-VC to contribute to the achievement of improved environmental technology dissemination.

The remainder of this paper discusses opportunities, at both strategic and practical levels, for future options.

Consider the benefits of aligning the work of APEC-VC, the SDGs, and Green Growth agenda

The APEC-VC is well aligned with the new direction for growth, as outlined under the post-2015 SDGs, specifically the intent to “promote the exchange of environmental business and the technology transfer to developing countries” and the “goal of contributing to preservation and restoration of our environments within the Asia-pacific region as well as around the world”.¹ APEC-VC could further consider how their scope of work will contribute to:

- Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development, with specific reference to the importance of technology, technology transfer and the potential role of APEC-VC.
- Goal 12: Ensure sustainable consumption and production patterns, with specific reference to how APEC-VC could provide a platform connecting producers and consumers within the APEC region.

Opportunities to pursue this could complement other partnerships with organisations based around complementary interests. These could include other APEC Working Groups and relevant fora, GGGI, the GCF, amongst others.

Pursue collaboration with Asia Pacific Network (APN) for Global Change Research

Work is already being undertaken to better collaborate with networks with similar objectives and this should be extended. We are working closely with APN for Global Change Research in Kobe, Japan, to conduct a scoping technology transfer workshop funded by the Ministry of the Environment, Government of Japan.

In undertaking the scoping workshop, APN wishes to engage the best partners and institutions in the region that are already making headway in technology transfer for a low carbon and climate resilient world. It will call on and bring together experts from bodies such as UNFCCC’s CTCN and TEC; APEC-VC, GEF, GCF, ADB (through its pilot Asia-Pacific Climate Technology Network and Finance Centre joint project with UNEP), UNEP-IETC, IGES and LoCARNet, and SIDA. With a view to engaging experts

from these bodies, APN expects to provide a robust framework that addresses the technology transfer needs of its member countries, particularly the barriers the countries are facing.

Promoting use of information technology for climate planning

There is a growing interest in using information technology to help economies measure and respond to the challenges of climate change. While it is relatively straightforward to measure mitigation outcomes, adaptation and capacity building efforts are considered more problematic in terms of the ability to measure their overall long term effectiveness. Sustineo is working collaboratively with ICLEI Local Governments for Sustainability and Akvo in spearheading the digitisation of the ICLEI/Asian Cities Climate Change Resilience Network (ACCCRN) climate change adaptation toolkit. The toolkit enables local governments to assess their climate risks and vulnerabilities, and to formulate adaptive response plans accordingly.

Prepared by Dr Lance Heath and Mr Tom Sloan on behalf of Sustineo P/L, 2016.



The APEC Osaka Meeting was held in 1995. Taking this opportunity, APEC Virtual Center (or APEC-VC) was established by consensus from municipalities, businesses and academic circles in the Kansai Region and has been conducting various activities for these 21 years. APEC-VC was established in 12 economies for these years. We made efforts to promote the exchange among APEC-VCs by sharing information on environmental technologies. Specifically, we set the common classification system and developed the common search engine and common content.

The APEC-VC Project entered into the 2nd stage in 2012. The operator of this project was shifted to VC Korea from VC Japan. Following the APEC organizational change, the working group in charge of this project was shifted to APEC Policy Partnership on Science, Technology and Innovation (PPSTI) from APEC Industrial Science and Technology Working Group (IST-WG).

As for APEC-VC Japan, the number of companies supporting APEC-VC Japan is on the decline, which causes us to make our activities limited and smaller. As the result, information provided by us is not sufficient enough for our member companies, related organizations and etc. We are situated in a position where it is difficult for us to continue our activities

1. Holding Seoul Workshop in 2015

Three representatives from VC Japan attended the workshop in Seoul. As the workshop, all participants discussed the way of conducting a project regarding “the establishment of network to enhance the partnerships with environment-related businesses, universities, research institutes and governmental organizations in the Asia – Pacific region” proposed by the APEC-VC Secretariat.

2. Project result of VC Japan

The mandate for the APEC-VC Project as one of APEC official projects expires at the end of Dec., 2017. Therefore, VC Japan needs to maintain the VC Japan secretariat under this mandate as we promised this to VC Korea. However, we currently have only two businesses supporting our activities. As our activities are covered by their member fees, the operation cost for VC Japan is remarkably decreased, which makes us difficult to continue conducting our activities.

We integrated our activities into three pillars : 1. Maintaining the APEC-VC Japan website 2. Attending the workshop and supporting the project plan 3. Conducting projects in cooperation with other organizations

2-1 APEC-VC Japan's enhancing dissemination of information

As we did in 2015, we made efforts to make good use of APEC-VC Gateway website developed by VC Korea and developed content meeting the environmental policy in Japan and the needs in Japan and abroad to upload it in the website, with a purpose of enriching content unique to VC Japan's website

“Treating sewage through sulfate-reduction/sulfur-oxidation and denitrification”

2-2 Conducting projects in cooperation with other organizations

As a part of APEC-VC's promotional activities, we held a seminar in cooperation with Society of Environmental Conservation Engineering and other as listed in the below :

- (1) 15th Annual meeting of Society of Environmental Conservation Engineering
Date : 2015.9.11 Venue : Osaka Sangyo University
- (2) 11th Seminar regarding groundwater usage technology
Date : 2015.10.22 Venue: No. 2 Osaka Ekimae Building

3. Ministry of Economy, Trade and Industry

We reported to METI : what we discussed at the Seoul Workshop, how the project is conducted and the current situation where VC Japan faces

- (1) Regarding the new project plan mentioned in the above, we gave our reply to the APEC-VC Secretariat : “VC Japan agrees to this proposal and has an intention to cooperate with the Secretariat as much as possible in working with experts from the industry-government-academia group.
- (2) A possibility of getting funds from APEC Fund has recently been difficult.
- (3) METI says that she cannot support VC Japan financially but offers support as much as possible to us except financial support.

Position Paper on the Extension of the APEC-VC Project

by

Carmel C. Gacho, Ph.D. , ASEAN Eng.

The APEC Virtual Center for Environmental Technology Exchange (APEC-VC) is a very timely and relevant project in the Asia-Pacific region working to create a global network for information exchange on any environmental field and energy-saving across the Pacific Rim. This project helps the APEC economies, municipalities, corporations and environment-related institutions in sharing, via the Internet, information on environmental technologies. APEC-VC's history can be traced back in November 1995 where it was approved as a formal APEC joint research project in Osaka Japan. As the mandate of APEC-VC Project expired in 2012, the APEC-VC Korea became the next secretariat of APEC-VC in 2013.

Active APEC-VC delegates from Australia, Chile, Malaysia, Philippines, Vietnam, and Chinese Taipei in 2014 talked on the range of activities the APEC-VC could do in the future. In particular, the role of the APEC-VC network could play in the ASEAN Economic Community (AEC) where there is a necessity for APEC and ASEAN to be taken together as part and parcel of the broader regional and global landscape.

The current gateway website (single entry point) hosted by the APEC-VC Korea is very comprehensive on its contents and lay-out. It addresses most of the concerns on knowledge gaps and support the integration among APEC member economies. Further, the website offers link between consumers with environmental technology products and services including the promotion of APEC-VC activities. The architecture of the APEC-VC Gateway website was developed incorporating the four categories under the "umbrella" category of "Information Sharing". These are as follows:

- Research and Development;
- Technology Promotion;
- Policy and Economic Development and
- Capacity Building.

The Philippines needs to sustain its participation to the APEC-Virtual Center program to explore opportunities for further international cooperation, in particular technology exchange and transfer in order to promote greater awareness on existing and other emerging technologies from developed and developing economies. The sharing of R & D accomplishments and technical development among overseas experts in relation to issues on environment and energy can accelerate the globalization of the Philippines' scientific and technological activities. Nowadays, recognition on the importance of international cooperation, such as our linkage with APEC-VC and the ASEAN

Community, as an important policy area may tremendously benefit the country due to the advent of a new world economic order based on competition and cooperation.

In view of this, the Philippine Government may consider enhancing its laws, institutions, and practices in accordance with the international norms and standards. A broad range of laws, administrative frameworks and customs must be reviewed and improved, particularly in the case of DOST to facilitate international cooperation, such as in the case of APEC-VC. This will allow the Philippines to contribute to a well-balanced and sustainable development of the APEC region, by carrying-out an improved and extensive research and technology exchange that is accessible even thru the internet.

The APEC-VC as a project must be supported by its member economies in order to become sustainable and successful. The funding of the program is the crucial ingredient because without it the project activities will not be implemented at all. The funding must be adequate and constantly available. Thus, there must be some form of commitment from member states, in particular the annual hosting of the meeting where a counterpart funding will be allotted by the member state. This could be proposed as a project among the members of the APEC-VC. Also, there must be constant and strong communication between the Secretariat and its member regarding the activities of the project.

In addition, the APEC-VC should also consider broader issues that were raised previously such as the nexus between economic growth, sustainability and the environment and to emphasize economic strategies that could be used to bring down the cost of environmental technologies and make them more affordable especially for developing countries. Moreover, a sharper focus in the promotion of the APEC-VC Gateway should be undertaken to elevate the website as a global hub of environmental technology exchange in order to reduce the technology gaps between the developed countries and economies in transition. Consequently, there is an urgent need for the APEC-VC project to be extended for at least five (5) or ten (10) years.

VIETNAM APEC-VC

Nguyen Manh Quan
Director of Center for Information Analysis
National Agency for Science & Technology Information*

Vietnam economy is growing fast and actively integrate into the world economy. VN's current GDP is US\$200 billion, per capita: US\$2200 (5600 US\$ PPP).

The Government of Vietnam recently has regarded the environment as a key component of its social- economic development and encourage companies in Vietnam pay more attention to environmental protection by issuing multiple regulations and standards relating to the environment.

According to statistics, there are over 80.000 industrial companies locate in about 300 industrial parks and 900 industrial clusters in Vietnam. Environmental pollution of most companies remains severe. These pollution sources are mainly from small and medium enterprises in the fields of cement, fertilizer, chemicals, pigments, metal plating, ceramic goods, ... Environmental pollution creates an adverse effect on the environment, depletes resources and undermine economic growth.

Therefore, Vietnam has a huge demand for products and environmental technology as well as the experience of other countries in the region in the formulation of policies relating to the management of the environment. Due technology capacity in Vietnam is still weak, especially those environmental friendly technologies, so most of the technologies have been imported from abroad.

The projects on the promotion and exchange of information on environmental technologies will help Vietnam access to the supply sources of environmental technologies from more advanced countries in the region, as well as technologies and products that is suitable the social- economic conditions of Vietnam, contributing to maintain economic growth while protecting the environment is healthy.

In Vietnam, there are portals for promoting information of environmental technologies but the content is poor, especially lack of information can support the exchange and transfer of technology. Having a global hub of environmental technology exchange will help to businesses looking for the right technology to develop production and environmental friendliness.

APEC Virtual Center for Environmental Technology Exchange (APEC-VC) is a strong and growing force in the Asia-Pacific region working to address these issues. This project helps APEC economies, municipalities, corporations and environment-related institutions share, via the Internet, information on environmental technologies. Much like an "environmental technology exhibition," APEC-VC disseminates a wide range of information related to protecting the earth.

In recent years, the implementation of activities within the framework of APEC VC is limited due to lack of budget. These activities mainly focus on the dissemination of limited information of environmental technologies and products through the portals of various governmental agencies, research institutions and portals of associations for the environmental protection.

Vietnam expects APEC VC project continue to be implemented due to the project needs more time to update the information resources on environmental technology and products, especially the offer from more advanced countries and demand of the developing countries. Also, there are the need to develop tools to assess the effectiveness of the project and mechanisms to enhance the participation of member economies in the process of project implementation.

There are needs of promotion of the project activities in the member economies and the improved ability to exploit information on environmental technologies, to expand capacity to meet the needs of businesses in member economies.