出國報告（出國類別：會議）

參加「2015 亞太環境技術交換虛擬中心(APEC-VC)會議」

服務機關： 行政院環境保護署

姓名職稱： 梁玉玲 管理師

派赴國家： 韓國首爾

出國期間： 104 年 10 月 27 日至 10 月 30 日

報告日期： 105 年 1 月 18 日

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參加「2015 亞太環境技術交換虛擬中心(APEC-VC)會議」出國報告

壹、會議背景與目的

「亞太環境技術交換虛擬中心(APEC-VC)」係西元 1995 年由亞太經合會(APEC)核准的官方計畫之一，主要為建立環境技術交換虛擬平台，該計畫原於西元 2012 年到期，惟西元 2012 年由日本在大阪主辦工作組會議中，各經濟體成員一致同意該計畫應該持續進行，並由韓國候選擔任秘書處於西元 2012 年在 APEC 工業科技工作小組(IST-WG)會議中簡報計畫獲各成員認可，將該計畫延長（自西元 2013 年至西元 2017 年），並將秘書處遷至韓國，並每年安排工作會議。

「2013 亞太環境技術交換虛擬中心(APEC-VC)會議」是於西元 2013 年 6 月 10 日至 11 日由韓國環境產業技術研究院(Korea Environmental Industry Technology Institute, KEITI)主辦，會議之目的，主要為討論後續計畫發展之進程與目標，韓國秘書處並在會中展示已建置完成 APEC-VC 網站(APEC-VC Gateway Website)。

「2014 亞太環境技術交換虛擬中心(APEC-VC)會議」是於西元 2014 年 8 月 27 日至 28 日由馬來西亞國民大學(Universiti Kebangsaan Malaysia, UKM)主辦，會議之目的，主要為研討運用 APEC-VC 網站強化環境技術資訊交流之推動計畫。

今(104)年「2015 亞太環境技術交換虛擬中心(APEC-VC)會議」則由韓國 KEITI 和韓國環境部(Ministry of Environment, MOE)聯合舉辦，今年是 APEC-VC 成立 20 週年，本次會議選定主題為「APEC-VC 新角色：擴大活動範圍」，探討的主要議題包括分享各經濟體的關鍵議題，以及找到振興新的管理計畫的方法來解決 APEC-VC 面臨的問題。

貳、會議過程

日 期	工 作 內 容 概 要
104.10.27	啟程，前往韓國首爾。
104.10.28	參加「2015 亞太環境技術交換虛擬中心(APEC-VC)」工作組會議，主題為「APEC-VC 新角色：擴大活動範圍」。第 1 天議程，包括開幕儀式、大合照、各國簡報、至會展中心(COEX)參訪韓國環境博覽會(ECO-EXPO 2015)等。
104.10.29	參訪非武裝地帶(DMZ)，包括第三隧道、都羅展望台、都羅山火車站、統一村等。
104.10.30	返程，抵達松山機場。

「2015 亞太環境技術交換虛擬中心(APEC-VC)會議」於 10 月 28 日至 29 日在韓國首爾舉行，並由韓國 KEITI 安排與會人員住宿於韓國首爾明洞宜必思尚品大使飯店(Ibis Styles Ambassador Hotel)。除我國外，尚有日本及馬來西亞等經濟體代表參加。

一、10 月 28 日上午工作小組會議

工作小組會議地點在韓國首爾明洞 Ibis Styles Ambassador Hotel 會議室舉行，於 10 月 28 日上午 10:00 各與會成員報到後，分以下議程進行，會議議程與會議資料詳如附錄。

(一)開幕儀式

本次會議由韓國 KEITI 管理與規劃部主任 Kim Gyungho 代表韓國環境部致歡迎詞，他讚賞各成員國在管理 APEC-VC 的努力，並表示希望 APEC-VC 可以作為一個全球性中心，透過本次會議所討論的新的管理計畫來解決環境問題。

(二)秘書處簡報

韓國於西元 2012 年在 APEC 工業科技工作小組(IST-WG)會議中簡報 APEC-VC 後續計畫獲各成員認可，將該計畫延長（自西元 2013 年至西元 2017 年），並擔任計畫秘書處，以提供資源持續進行計畫

工作。

來自韓國的代表介紹了 APEC-VC 韓國秘書處的進度報告，簡報內容包括 APEC-VC 過去的活動以及未來規劃，重點說明如下：

1. APEC-VC 韓國的工作人員於去(103)年 8 月 10 日至 12 日至菲律賓馬尼拉參加第六屆科學、技術和創新的策略夥伴關係(APEC-PPSTI)會議，就 APEC-VC 進度報告，並提交一份新計畫概念說明。
2. APEC-VC 網站於 103 年完成建置後持續精進內容，目前韓國正在上傳蒐集到的韓國和亞太地區的環境資源效能指標，以達成環境技術資訊流通。
3. 韓國也收集已經使用合適技術的一些地方案例，並預計在今年年底發布這個計畫報告內容。
4. APEC-VC 未來將規劃 VC500 計畫，期間自西元 2016 年 1 月 1 日至西元 2020 年 12 月 31 日止，實施內容包括：擇定關鍵環保議題(EFI)、選擇領導群組、建立合作網路、分享環境資訊和共同處理急迫問題、舉辦 APEC-EFI 座談會和 APEC 獎、出版 APEC-EFI 報告等。

(三)各經濟體代表簡報

1. 日本

日本代表由後藤博子(Hiroko Goto)進行簡報，介紹 APEC-VC 日本主要議題及活動，以促進環境技術資訊交流。

APEC-VC 日本成員於西元 2014 年參加了在吉隆坡舉行的一次研討會，討論 APEC-VC 的未來發展方向。此外，利用網站加強環境資訊交流能力，也已經上傳自己的數據在 APEC-VC 日本網站上，並邀請其他組織參加活動。APEC-VC 日本也編纂紀實摘要，並向日本政府報告馬來西亞的會議成果並提交書面總結。

最後，展示日本的能源結構，並說明日本的核電廠及運作情形。

2. 馬來西亞

馬來西亞代表為 Nik Faizul，報告有關馬來西亞的國家環保科技政策。

馬來西亞政府選擇綠色科技作為經濟成長的主要動力之一，並介紹國家綠色科技政策，包括能源、環境、經濟和社會等，馬來西亞亦經由環境政策持續進行各種與環境有關的相關計畫，並促進和發展綠色產品以加快國家經濟。

目前馬來西亞已建立單一入口網站蒐集有關環保技術相關資訊，並持續進行研究計畫及舉辦一些代表性的活動。

3. 我國

我國由行政院環境保護署梁玉玲管理師說明導入環境資訊雲端服務的辦理情形，包括環境雲(EnviroCloud)整體計畫的背景和整個計畫概要說明、階段性工作成果以及未來展望等。

環境雲計畫是行政院核定為 10 朵政府雲之一，計畫期程從 102 年開始執行到 105 年，除了已整合環境相關數據進行資料流通及資料開放外，並與其他政府機關介接使用促進利用率。民眾也可以運用開放資料來開發空間相關的系統應用，以及行動裝置的加值應用，提供適地性服務。

未來，將持續拓展資料蒐集的範圍並落實資料品質，建構一個資料及服務的環境資料雲端運算模式；此外，也開始著手規劃導入及建置巨量資料相關技術，成為將來在環境治理上政策工具的一個重要科學的基礎。

(四)討論與閉幕

會議最後一個議程為討論韓國代表所提出來的新的管理計畫 VC500。為了克服有關 APEC-VC 管理的挑戰，並加強 APEC-VC 的角色作為環境資訊交換網絡為目的，該提案主要是選擇關鍵環保議題（EFIS），並和來自產業、學術界、研究機構以及政府與參與 VC 成員所組成核心角色等專家領導團體展開聯合研究。最後，希望在五年經營期限內建立 500 位網路專家和增加 APEC-VC 的會員國成員數

以及參與機構數目能得以實現。

經本次會議討論結果，主要歸納如下：

1. 討論的題目之一，是需要更明確的定義範圍和更詳細的內容，同時為了說服業界和其他相關機構，APEC-VC 必須定義主要角色和工作區域。APEC-VC 最重要的成果是網站，因此新計畫的執行必須在網站上擴展範圍。而目前存在例如不穩定的網路傳輸以及如何選擇當地主管和上傳資訊缺乏準則的問題必須要解決，同樣地，每一個環保部門必須明確定義範圍，並且具體提出如何選擇需要被解決的問題。
2. 另一個討論的題目是獲得政府的財務支持，韓國將根據新的計畫向韓國政府爭取預算。此外，APEC-VC 將按照新的平台來成功分配資金。類似臺灣提出來的政府雲的概念，每個國家為了解決環境議題所產生的業務建立一個新的平台架構，該平台必須可運用於不同的領域。而每個國家為了爭取預算，環保相關產業必須要參與。
3. 最後，必須鼓勵更多的國家參加 APEC-VC。在這種情況下，如果有新的參與國不斷出現，就很難保持計畫的一致性和連續性。為了因應這一點，每一個國家應該以機構等級建立固定的聯繫窗口，而不是以個體層面來建立，以避免萬一該負責人變動的情形（如紐西蘭和泰國），並且必須鼓勵這些成員多參與 APEC-VC 會議。

二、10 月 28 日下午參訪韓國環境博覽會(ECO-EXPO 2015)

10 月 28 日下午全體與會人員由飯店驅車前往國際會議暨展示中心(COEX)，該中心是南韓其中一個最大型的展覽館，本次參訪 2015 韓國環境博覽會(ECO-EXPO 2015)，此次活動是韓國境內最大的環境博博覽會，提供參觀者有關環保資訊和服務，參展項目包括環保產品、環保技術、能源、建材、交通與運輸、流通與服務、政府機構、地方政府、公共機構、相關環境協會與組織等。

本次展覽會展時間為西元 2015 年 10 月 27 日至 10 月 30 日為期

4 天，共有 246 家與環保有關企業和機構參展，主辦單位為韓國環境部，承辦單位為 KEITI，其他單位還包括：教育部、文化體育觀光部、綠色企業協議會等。當日韓國也派員在現場為與會人員簡要說明目前該機構在綠能發展與應用。

三、10 月 29 日參訪非武裝地帶(DMZ)

10 月 29 日上午 8 時全體與會人員由飯店驅車前往非武裝地帶(DMZ)，該地方位於南北韓交界處，戒備非常森嚴，必需事先申請還要改搭園區內專屬的大巴士，才能進入管制區。DMZ 是西元 1953 年 7 月 27 日，南韓和北韓於板門店簽署了《南北韓停戰協定》，以 38 度線及其周圍地區所組成的非武裝地帶，全長達 248 公里，寬度則大約 4 公里。

本次參觀路線包括：第三隧道、都羅展望台、都羅山火車站、統一村等。其中第三隧道總長約 1.7 公里，高跟寬則各為 2 公尺，為北韓攻擊南韓時所使用的空間，也是威脅最大的一條隧道。地道前的紀念碑，是一個裂成兩半的球，分別代表南北韓，象徵兩邊的民眾合力想要讓南北韓統一。

另外，都羅展望台是距離北韓最近的瞭望台，透過望眼鏡可以看到北韓國境。都羅山火車站位於京義線上，原本是南韓為了追求統一所建可以連通南北韓的鐵路，惟目前主要是用來運送物資。統一村則是 DMZ 地區內唯一的韓國村落，村內的專賣店，除了 DMZ 的紀念品，其它幾乎都是統一村的農產品。

參、 心得與建議

一、 與會經濟體成員一致認為 VC500 新計畫應提供詳細且實用的大綱以確保爭取政府預算（如資料收集及檢驗政策、程序或方法），以及應鼓勵亞太地區其他國家和環保產業參與。

二、 主辦單位（韓國）預計 105 年起執行 VC500 新計畫，屆時本署將配合網站宣傳。

三、 持續促進交流亦為本次工作會議主軸，建議本署未來可持續參與工作會議，以擴大多方交流與學習。

肆、 會議照片

圖 1 會議現場

圖 2 主辦國贈送紀念品給各經濟體代表

圖 3 出席大會全體人員合影

圖 4 參訪韓國 ECO-EXPO 2015

圖 5 參訪韓國非武裝地帶(DMZ)

附錄 會議資料

Schedule for APEC-VC Seoul Workshop 2015

Seoul, 28-29 October 2015

Date	Time	Agenda Item
Day 1 (28 Oct)	10:00-10:30	Announcement (schedule) Introduction of participants Opening Remarks Group photo
	10:30-10:45	Coffee Break
	10:45-11:15	**Report of activities by each economy** - VC Japan - VC Malaysia - VC Chinese Taipei
	11:20-11:30	**Report of APEC-VC Secretariat** - APEC-VC Korea to report on key issues of VC project and future activities
	11:30-12:20	**Discussion**
	13:00-13:40	Move to COEX
	14:00-15:00	Lunch
	15:00-17:30	**Visit Eco-EXPO Korea 2015 (COEX)** Organized by KEITI/ME
	18:00-20:00	Reception – BBQ *(Le Style Restaurant & Bar – ibis styles ambassador hotel 21F)*
Day 2 (29 Oct)	08:00-15:00	**Technical Tour & Lunch** *(Location-DMZ: Demilitarized zone, Imjingak Tour)* Departure & Arrival : ibis styles ambassador Myeongdong hotel

KEITI 한국환경산업기술원

Progress report of APEC-VC Korea & Improvement of Operation Method for APEC-VC Revitalization

APEC-VC Seoul Workshop 2015
28-29 October, Seoul, Korea

Jinseon Yim (KEITI), APEC- VC Korea

Contents

I Introduction

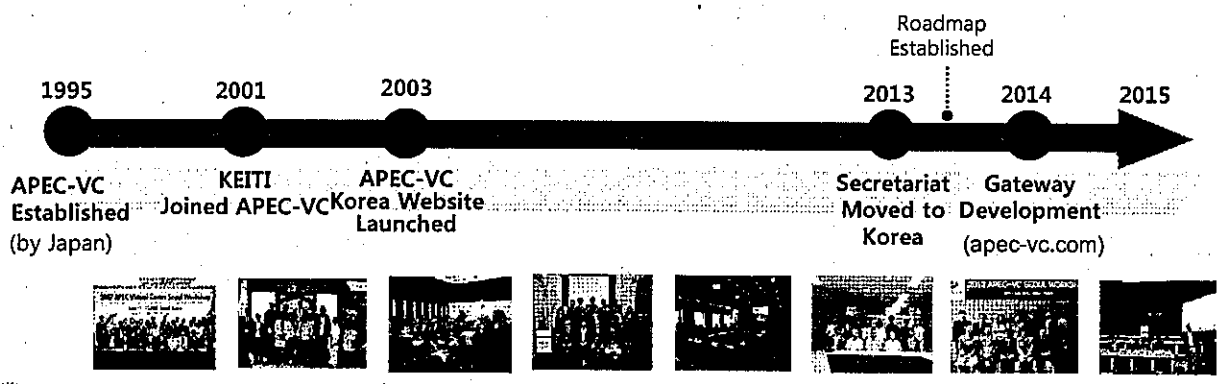
II Past activities of APEC-VC

III Future Plan

1. Introduction

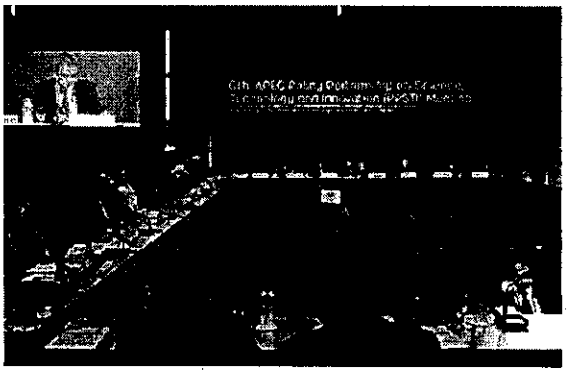
Exchange of environmental technologies to assist SMEs and developing economies

Project	APEC Virtual Center for Environmental technology exchange
Period	2013~2017 (Endorsed by IST-WG)
Economy	Republic of Korea (lead Economy)
Co-Sponsor	Japan, Australia, Chile, Philippines, Malaysia, Chinese Taipei, Vietnam



2. Past Activities of APEC-VC Korea

1. APEC-PPSTI



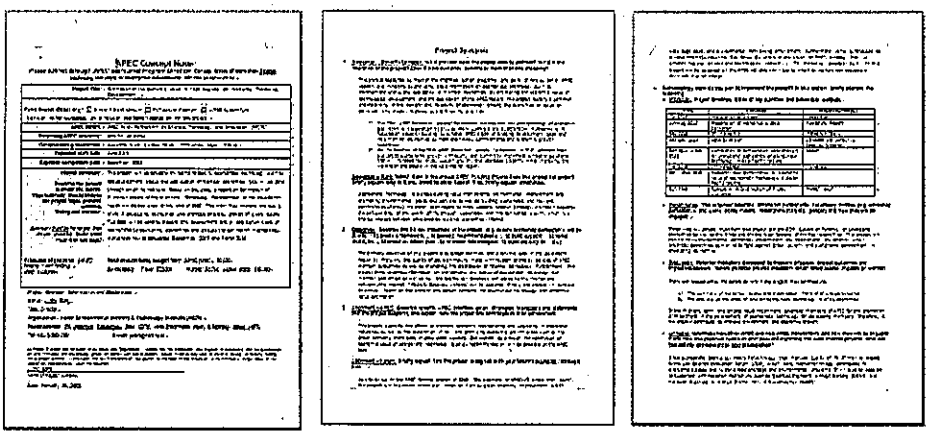
6th APEC Policy Partnership on Science, Technology and Innovation (PPSTI) Meeting

August 10-12, Manila, Philippines

Presentation on progress report and new concept note of APEC-VC

2. Past Activities of APEC-VC Korea

1. APEC-PPSTI

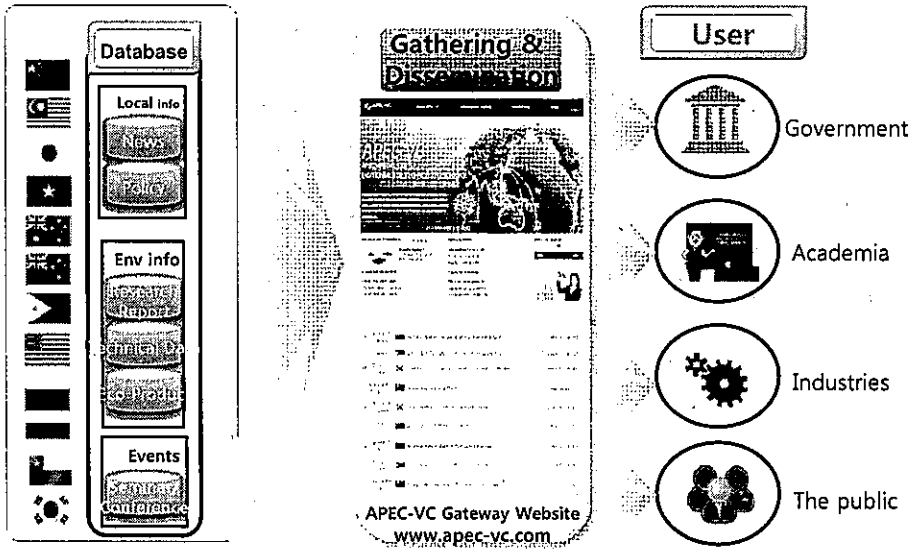


APEC Concept Note for 2015-2016

Project Title : Estimation of the Economic Value in APEC Regional Environmental Technology Development

2. Past Activities of APEC-VC Korea

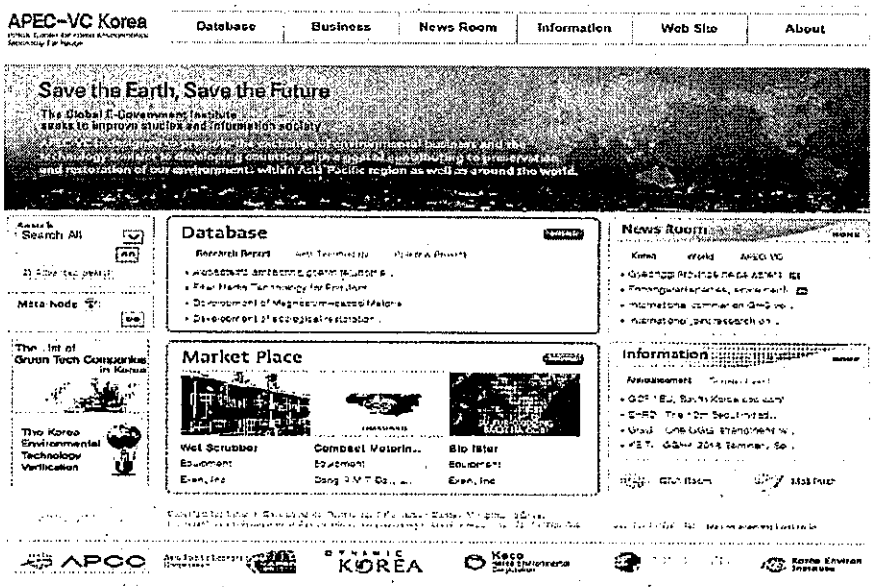
2. APEC-VC Gateway Website



Uploaded Contents : Indicators for a resource efficient and green Asia and the Pacific, etc.

2. Past Activities of APEC-VC Korea

3. APEC-VC Korea Website



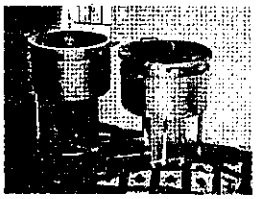
2. Past Activities of APEC-VC Korea

4. Research Study on Appropriate Technology

The Definition of Appropriate Technology

Appropriate technology (AT) is technology that is designed with special consideration to the environmental, ethical, cultural, social and economical aspects of the community it is intended for.

Lifestraw



Rocket Stove

* Appropriate Technology is a cross-cutting issue that benefits environmental improvement and promoting environmental goods and services as well as building sustainable and resilient communities

Image Source : http://listverse.com/2010/06/12/10-cases-of-appropriate-technology/

사례 수집: 아시아태평양지역 20개 국가 분야별 사례 보고서 발행 예정

Agenda for APEC-VC Seoul Workshop 2015 :

Improvement of operation method for APEC-VC revitalization

Lesson learned…

Problem

1. Financial hardship (High competition for APEC Fund)
2. Lack of significant results of APEC-VC project - PPSTI

Solution

1. Trying to secure budget (government funding)
2. Reorganizing operation method of APEC-VC

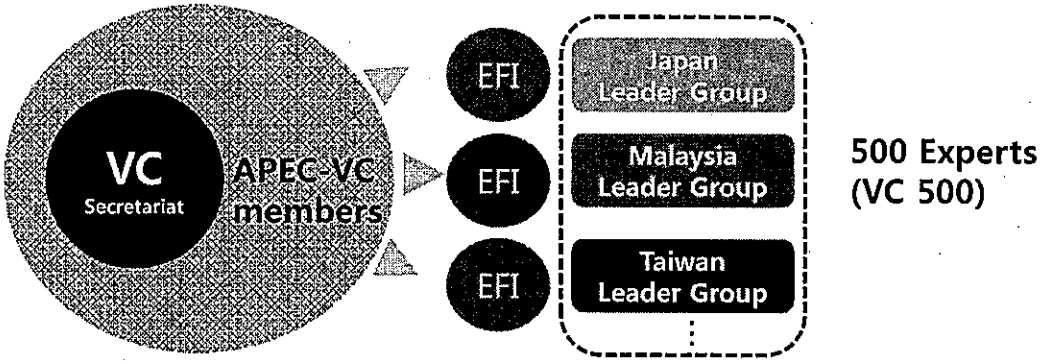
3. Future Plan

VC500 - Improvement of operation method for APEC-VC revitalization

* Main Concept

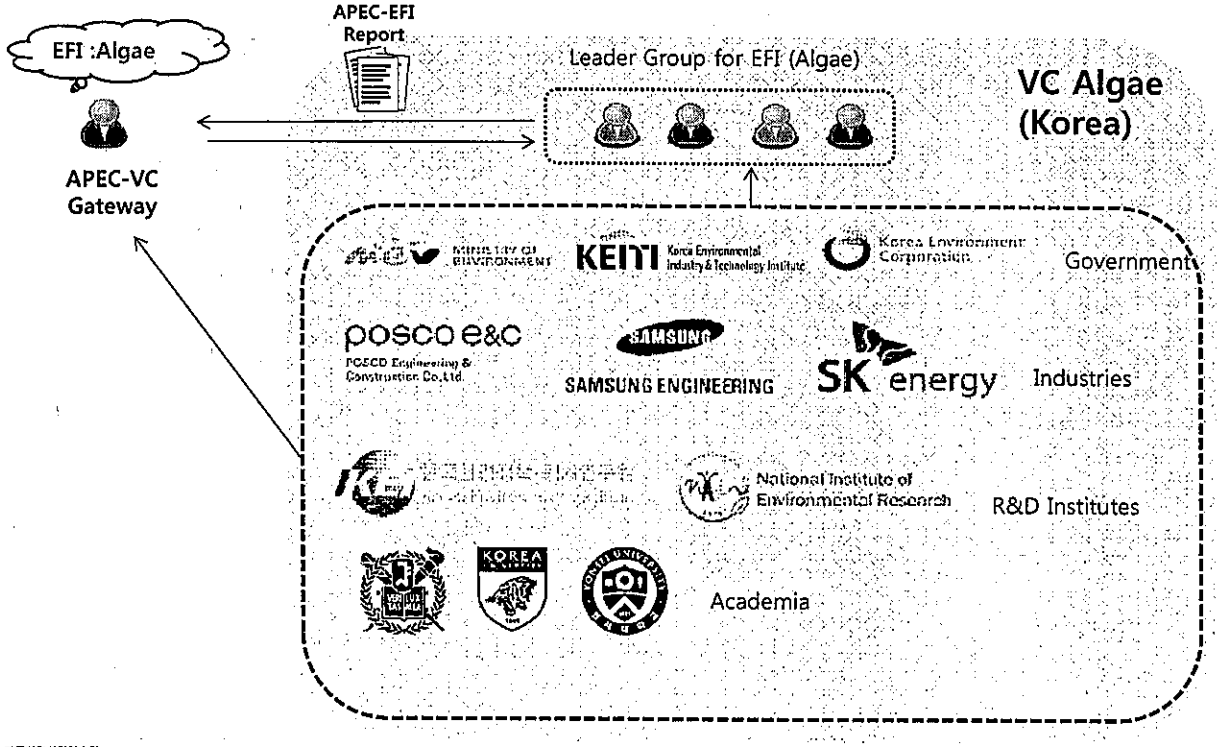
- Networking of 500 experts
- Environmental Flagship Issues (EFIs)
- Leader Groups

  : to collect and provide information regarding EFIs of each nation



3. Future Plan

Example



3. Future Plan

Benefits

1. Holding APEC-EFI Symposium
2. Awarding the best EFI (APEC-VC EFI Awards)
3. Publishing and APEC-EFI Report

3. Future Plan

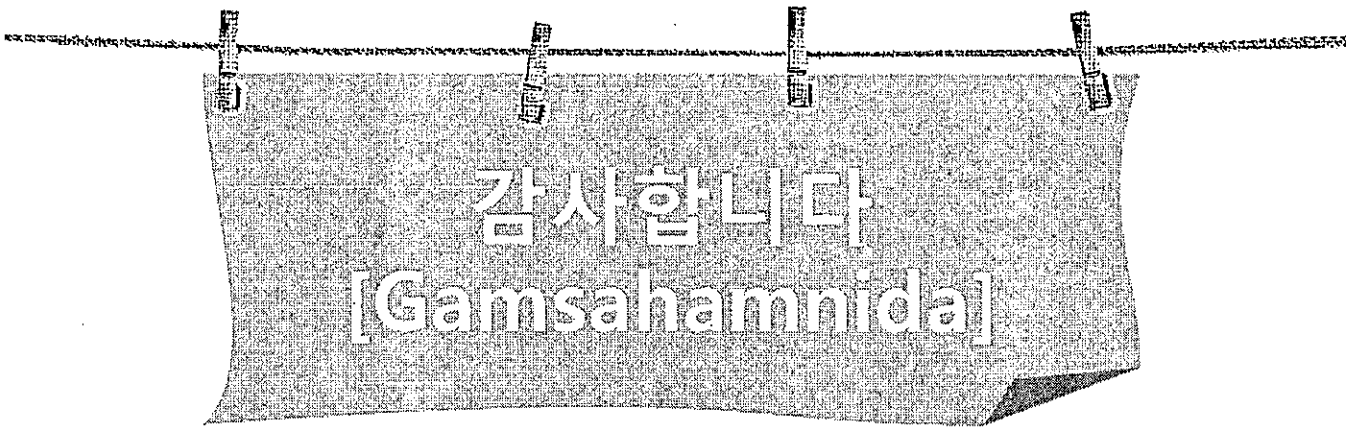
Forward Activities

1. APEC-VC members:

- Members' agreement on the agenda by November 20th
- Conduct survey researches to select EFIs , organize Leader Groups by 2016

2. VC Secretariat :

Provide details of the procedure (to invite expers, organize research teams(leader groups), research grants(rewards), Etc.) by 2016



Thank you for your attention

Discussion

•Project: Establishing a network for cooperation between environment-related industry, academia, research institutes and government agencies in the Asia-Pacific region (VC 500)

•Objective : Solving national environmental problems in cooperation through a network of 500 businesses, universities, research institutes and government agencies

•Period : 2016. 1. 1 ~ 2020. 12. 31 (for 5 years, subject to extension)

•Background : Increased need for overcoming the closed nature of the APEC-VC management and strengthening the role of the network for environmental information exchange

•Project activity : Sharing Environmental Flagship Issues of APEC members and solving global environmental issues collaboratively through the network

<Outline of New APEC-VC Management Plan (VC500)>

- **Project: Establishing a network for cooperation between environment-related industry, academia, research institutes and government agencies in the Asia-Pacific region (VC 500)**
- **Objective** : Solving national environmental problems in cooperation through a network of 500 businesses, universities, research institutes and government agencies
- **Period** : 2016. 1. 1 ~ 2020. 12. 31 (for 5 years, subject to extension)
- **Background :** Increased need for overcoming the closed nature of the APEC-VC management and strengthening the role of the network for environmental information exchange
  - ※ Changed position of APEC-VC: under the working group in 2013 → under the policy partnership in 2014
  - ※ More clearly specified goals: boosting economic revitalization based on expanded participation of science-related industry, academia, research institutes and government agencies
- **Project activity : Sharing Environmental Flagship Issues of APEC members and solving global environmental issues collaboratively through the network**

< Plan for implementing APEC-VC >

Classification	Contents	Directing body	Note
Selecting national Environmental Flagship Issue	Selecting the most pressing environment issue or the most needed advanced technology	**Temporary leading groups**	VC group
▼			
Deciding on EIF	Selecting EIFs through meetings and by a vote (5-10 themes)	**Secretariat**	Temporary leaders in cooperation
▼			
Choosing leading groups	Selecting leading groups based on EFIs of each nation	**Temporary leading groups**	-
▼			
Establishing a network for cooperation	Forming a network of industry, academia, research institutes, government agencies of each nation (40-50 people)	**Leading groups**	-
▼			
Sharing environmental information and dealing with pressing issues together	·Collecting and providing national EIF information ·Solving network-driven problems	**All member nations** (under the leading groups)	Online
▼			
Holding APEC-EFI symposium and APEC award	·Announcing and discussing EFIs ·Selecting and awarding the best EFI	**Secretariat** (Around 5 people from each nation)	(Seeking financial assistance from companies, etc.)
▼			
Publishing APEC-EFI report	·Publishing and distributing EFI report	**Secretariat**	Subject to change depending on budget

APEC-VC Japan 2014 Progress Report

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 this year marks the 20th anniversary of its establishment. 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 PPSTI from IST-WG. The project supported by APEC Fund from 2012 finished at the end of Dec. 2014. Further contributions with the launch of new project are requested. We made out the summary documentation in order to compile what we did through the APEC-VC project. This documentation was submitted to VC Japan supporting businesses, its related organizations and etc. We also make good use of this documentation when we consider what we can do through the project from now on.

1. Holding Kuala Lumpur Workshop in 2014

VC Japan sent three participants to this workshop to discuss the future direction of the APEC-VC project.

2. Project plan for VC Japan

Following the application for the extension of the APEC-VC Project, our activities through this project are allowed by the APEC Secretariat until the end of Dec. 2017. With our promise with VC Korea made when the Secretariat was shifted to VC Korea, we need to maintain the management of the VC Japan Secretariat during this authorized period. We manage the VC Japan Secretariat, supported by our supporting businesses. However, it is getting difficult for us to maintain the VC Japan Secretariat as the number of our supporting businesses is decreasing. At the result of our discussions with our related organizations, we manage the VC Japan by working together with other VCs based on the Chairman's summary for the workshop held each year as long as our supporting businesses support us.

2-1 Enhancing information dissemination ability of APEC-VC Japan

We made good use of APEC-VC gateway site and updated VC Japan's own content in the APEC-VC Japan website as we did last year. We developed content meeting the environmental policy and needs in Japan and abroad and updated it in our website. Please visit : **http://www.apec-vc.or.jp/e/**

(1)Disaster Waste Incineration

(2) Rare Metal Recycling - Applications and Problems with Urban Mines

2-2 Event held with other organizations

As a part of activities to promote the APEC-VC, we worked together with other organizations such

as Society of Environmental Conservation Engineering to organize or join events.

(1) Holding a seminar regarding groundwater contamination with NPO Groundwater Usage Technology Center (2014.08)

(2) 14th annual meeting by Environmental Conservation Engineering (2014.09)

3. Compilation of documentary summary

We made out the summary documentation in order to compile and make good use of what we did through VC activities. This covers the progress and achievements for this project from 1994 when we started preparing for this project to 2013 when we shifted the VC Secretariat to VC Korea from VC Japan.

The documentary summary consists of :

1st chapter History of APEC Environmental Technology Exchange Project

2nd chapter Development of APEC Environmental Technology Exchange Project

3rd chapter Change of organization managing APEC Environmental Technology Exchange Project

4th chapter Future Development of APEC Environmental Technology Exchange Project

We submitted this documentation to VC Japan supporting businesses, its related organizations and etc. and asked them to support the APEC-VC Project

4. Report to Ministry of Economy, Trade and Industry

We visited International Office for Industrial Science and Technology Policy and Environment Bureau supervising this project. We reported the result of Malaysia Workshop and submitted the documentary summary.

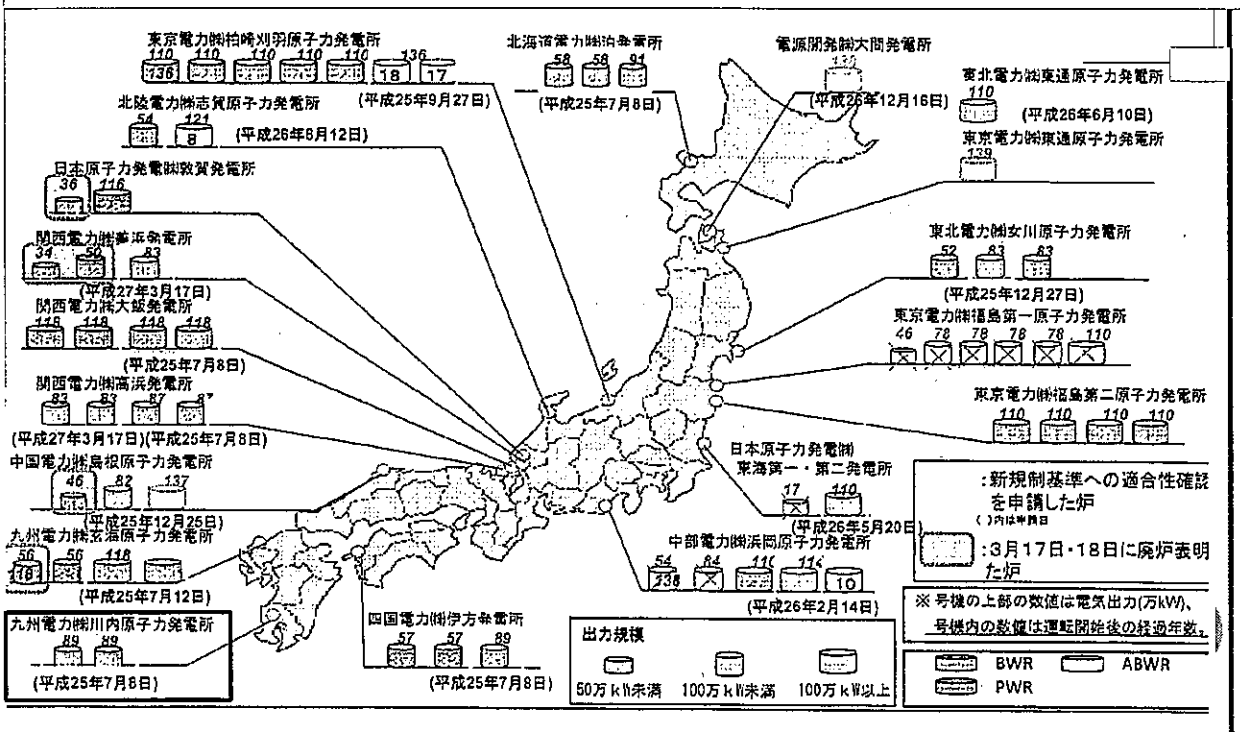
(1) Many APEC-related projects are transient. One-year long project is rare. She showed her thanks to us for our having continued the APEC-VC project for such a long time and her will of support to this project as much as possible.

(2) We asked her to provide information on the results of Policy Partnership on Science, Technology and Innovation (PPSTI)discussions for us.

以上

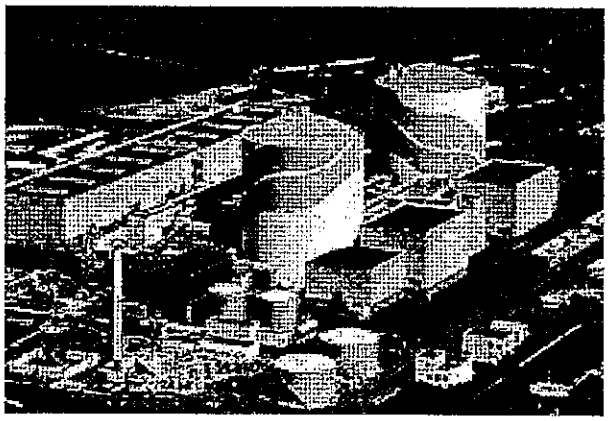
Nuclear Power Plant in Japan(18,Mar 2015)

- Unit 1, 2, 3, 4, 5 and 6 at Fukushima Daiichi Nuclear Power Station have been already decommissioned.
- There is a policy that 5 aging reactors are decommissioned on Mar. 17 and 18.

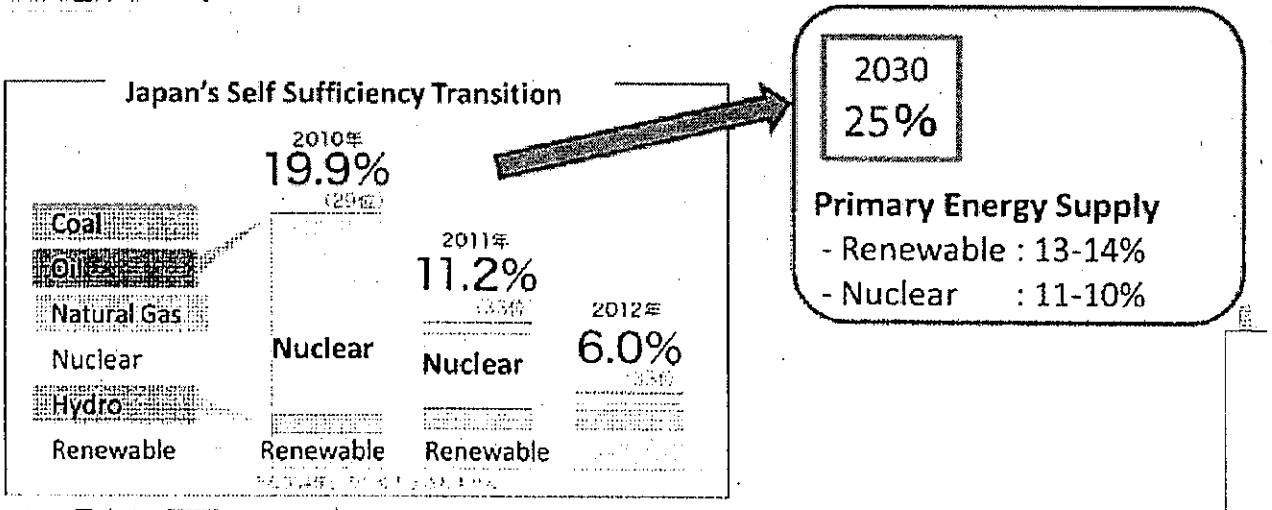


Sendai Nuclear Power Plant

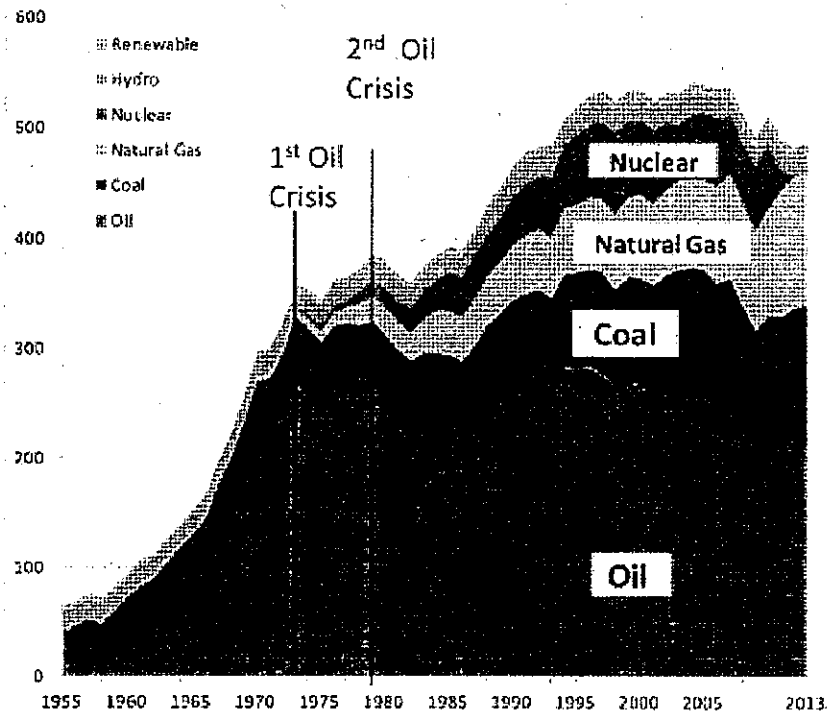
Items		NO,1	NO,2
Site Area		About 1,450,000 m^2	
Electric Output		890,000 Kilowatt	890,000 Kilowatt
Nuclear Power Reactor		Pressurized Water Reactor (PWR)	
Fuel	Type	Low-enriched Uranium dioxide (4～5%)	
	Loading	About 74 Tons	About 74 Tons
Opening of Business		4,July 1984	28,November 1985



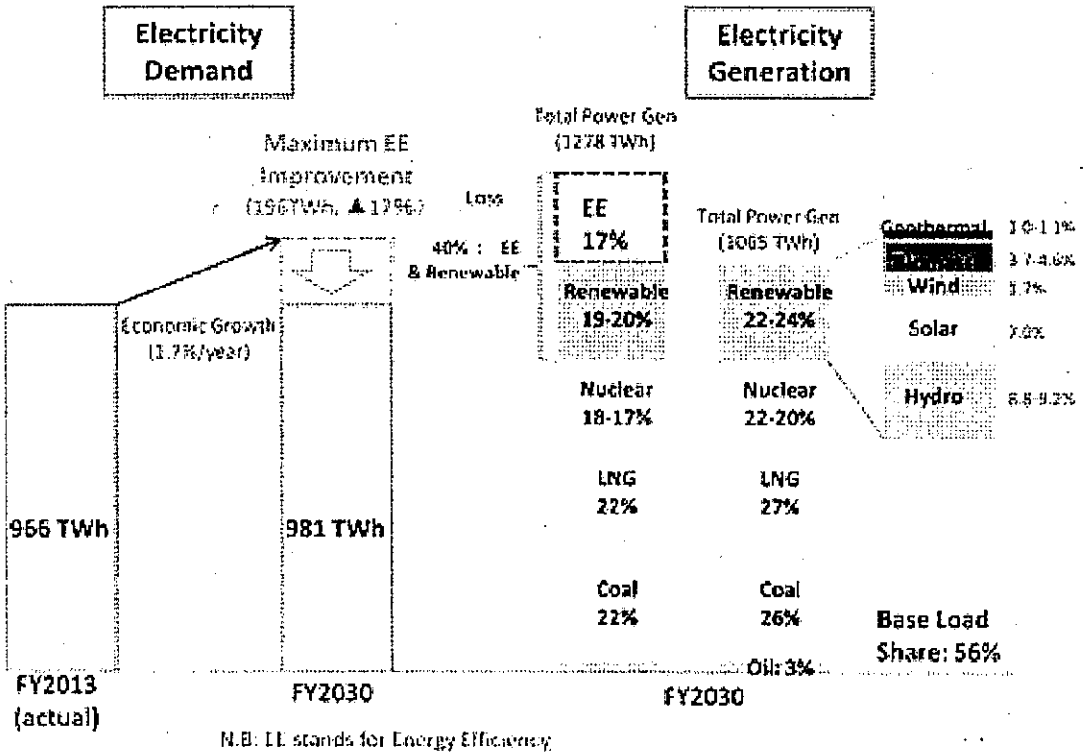
Japan's Self Sufficiency Transition



Energy Supply Diversity

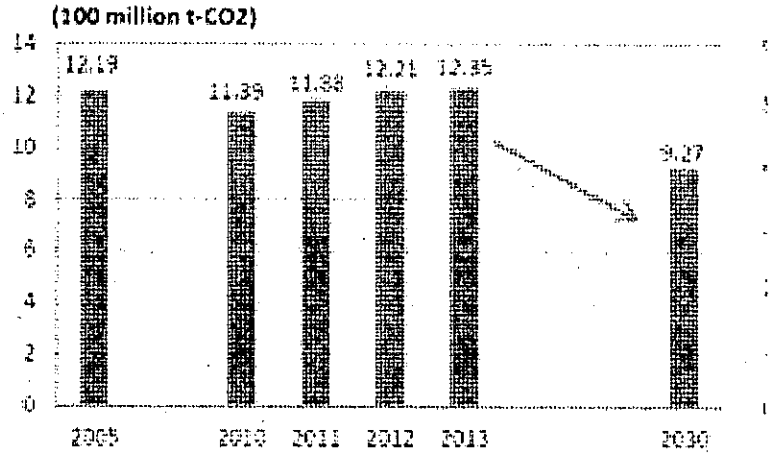


Radical Electricity Saving and Balanced Power Mix



Energy Related CO_2 Emission (100million t-CO_2)

	[illegible]	[illegible]
CO2 Emission Total	12.35	9.27
Relative to 2005	+1%	▲24%
Relative to 2013	-	▲25%



APEC Virtual Centre for Environmental Technology Exchange Workshop

University Kebangsaan Malaysia (UKM)

Majlis Room

Kuala Lumpur, Malaysia 27-28th August 2014

Chair's Summary

In session 1: "Opening Session", Prof Mazlin Mokhtar (Deputy Vice Chancellor of UKM) from APEC-VC Malaysia welcomed all APEC delegates to the workshop and gave a key note address on a range of activities the APEC-VC could do in the future. In particular the role the APEC-VC network could play in the ASEAN Economic Community (AEC), which will be launched in Malaysia next year (2015). The APEC-VC should also consider broader issues such as the nexus between economic growth, sustainability and the environment and to highlight economic strategies that could be used to bring down the cost of environmental technologies to make them more affordable.

Progress on the APEC-VC Gateway website was presented by Ms Jinseon Yim from APEC-VC Korea in Session 2: "Progress of the APEC–VC Gateway Website". This project relates to the Road Map, which was planned and discussed at previous APEC-VC workshops. A concept proposal to develop the APEC-VC Gateway website was submitted by APEC-VC Korea and funding was awarded in 2013. The objective of the Gateway website is to exchange information between member APEC economies; alleviate problems that lead to knowledge gaps; help promote integration between APEC member economies; link consumers with environmental technology products and services, and to promote APEC-VC Activities.

A single entry point (www.apec-vc.com) on environmental technologies was launched this year. 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.

APEC-VC Korea was congratulated by all participating APEC-VC member economies on the development of the APEC-VC Gateway website.

A contest to promote and allow for new ideas relating to the APEC-VC Gateway website will take place in March-May 2015. The competition will be open to students, academics and industry representatives from all APEC member economies and entries will be judged in June 2015. The prize will include a trip to the next APEC-VC workshop in Seoul, Korea in 2015 and the winner will present their ideas at this workshop. A new concept note was prepared by APEC-VC Korea to provide the necessary funds to cover the cost of the competition. Delegates discussed the need to develop a set of guidelines for prospective applicants and for selecting a winner. It was suggested that the APEC-VC Secretariat should look at examples of previous competitions that have been successful and to model our approach on these successful competitions. It is also important to have an opening explanation on the aims and objectives of the APEC-VC as a guide for applicants.

In session 3: "Report of activities by each economy" a report was provided by each APEC-VC member economy: APEC-VC Chile, APEC-VC Chinese Taipei, APEC-VC Japan, APEC-VC Malaysia, APEC-VC Philippines and APEC-VC Australia. Presenters gave an overview of their activities which included networking opportunities and student scholarships (i.e "Start up" initiative launched in the economy of Chile). All APEC-VC member economies are continuing on going activities (seminars and workshops) and reporting their activities to APEC. Some external organisations continue to provide some financial support for the APEC-VC. Some member economies are drawing upon other programmes and policy related activities to enhance the relevance of their APEC VC nodes (i.e APEC-VC Malaysia is involved in or supporting a number of environmental initiatives and in the case of APEC–VC Philippines it is the NOAH program). Some economies are still continuing their nodes (websites) but it is becoming increasingly difficult to find the funds to maintain the status quo (i.e website maintenance and up-loading content etc).

In session 4: "The Way Forward" discussion focused on ways to better promote the APEC–VC Gateway website. A few ideas were put forward such as an APEC-VC stand or booth at an environmental technology expo or conference. In the short term, a brochure targeted at government agencies, industry groups, stakeholders and academic institutions should be printed. An outreach strategy could also be developed for the new portal.

Session 4 also highlighted the need to expand the activities of the APEC-VC and in particular strategies for achieving this goal. It was agreed that a number of issues should be discussed at the next workshop in Seoul, Korea. These include: i) APEC-VC involvement in ASEAN Economic Community (AEC); ii) regional migration (some regions require higher population growth such as Singapore where the birth rate is very low) and the role of environmental technologies. Population growth is likely to come at a cost to the environment unless action is taken to ameliorate the impacts of rapid economic development on the environment; iii) strategies for making environmental technologies more affordable; iv) 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).

Last but not least, the Chair thanked all APEC member participants for their contribution and a special thank you to APEC-VC Malaysia for hosting such an enjoyable and productive workshop.

Chair: Lance Heath (APEC VC Australia)
August 2015

APEC Virtual Centre for Environmental Technology Exchange Workshop

Meeting Minutes

Program/Area:	**APEC Virtual Centre for Environmental Technology Exchange Workshop 2014**
Meeting Purpose:	*A Plan to Strengthen Environmental Technology Information Exchange Using APEC-VC Gateway Website in Asia-Pacific Region*
Meeting Date:	27-28th August 2014
Meeting Location:	Kuala Lumpur, Malaysia
Meeting Facilitator:	University Kebangsaan Malaysia (UKM)
Attendees:	Prof. Dr. Mazlin Mokhtar (LESTARI of UKM, Malaysia) Mr. Nik Mohd Noor Faizul Md Saad (LESTARI of UKM, Malaysia) Dr. Lance Heath (ANU, Australia) Dr. Lionel GIL (UNIVERSITY OF CHILE, Chile) Mr. Yen-Chin Wong (EPA, Taiwan) Mr. Suzuo Dan (Supporting Committee for APEC- VC, Japan) Ms. Hiroko Goto (Supporting Committee for APEC- VC, Japan) Dr. Takeshi Tsunemi (Supporting Committee for APEC- VC, Japan) Dr. Carmel Cruz Gacho (DOST, Philippines) Ms. Kyunghee Lee (KEITI, Korea) Ms. Jinseon Yim (KEITI, Korea)
Minutes Issued By:	APEC-VC Korea (KEITI, APEC-VC Secretariat)

Program

Session 1 : Opening Session
Session 2 : The Progress of APEC-VC Gateway Website
– Presentation from APEC-VC Korea
Session 3 : Report of Activities by Each Economy
Chair by Dr. Lance Heath
- VC Chile
- VC Chinese Taipei
- VC Japan
- VC Malaysia
- VC Philippines
- VC Australia
Session 4 : The way forward (Discussion)

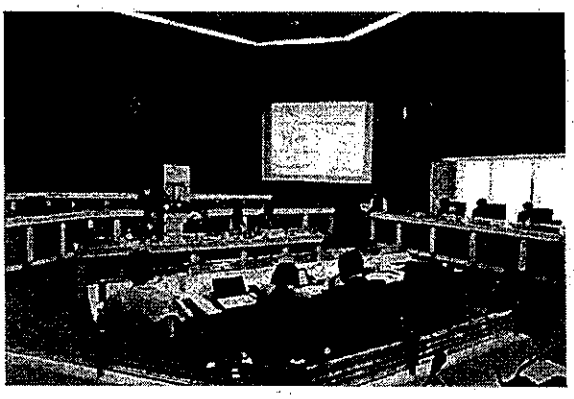
Discussion: (Items/Knowledge Shared)

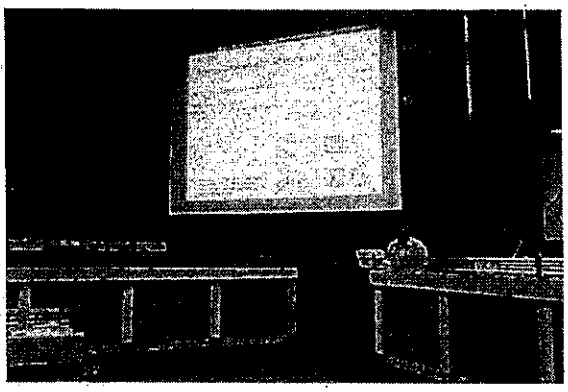
- Expand the activities of the APEC-VC and achieving the goal
- Promote the APEC-VC Gateway Website

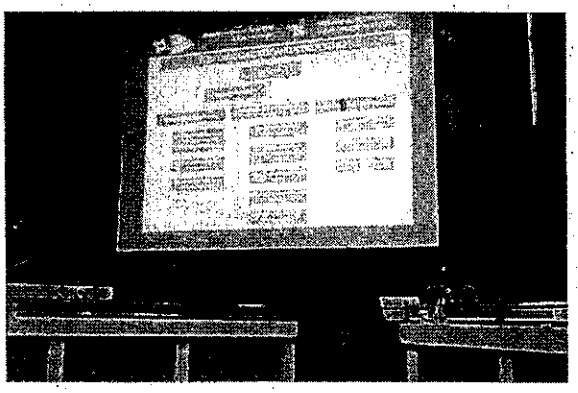
Project Overseer Information and Declaration:
Name: Jong Sun Kim
Title: Director
Organization: **Korea Environmental Industry & Technology Institute (KEITI)**
Postal address: 215, Jinheung-ro, Eunpyeong-gu, Seoul, 122-706,
Korea Environmental Industry & Technology Institute (KEITI)
Tel: 82-2-380-0551 ***E-mail:*** eco@keiti.re.kr

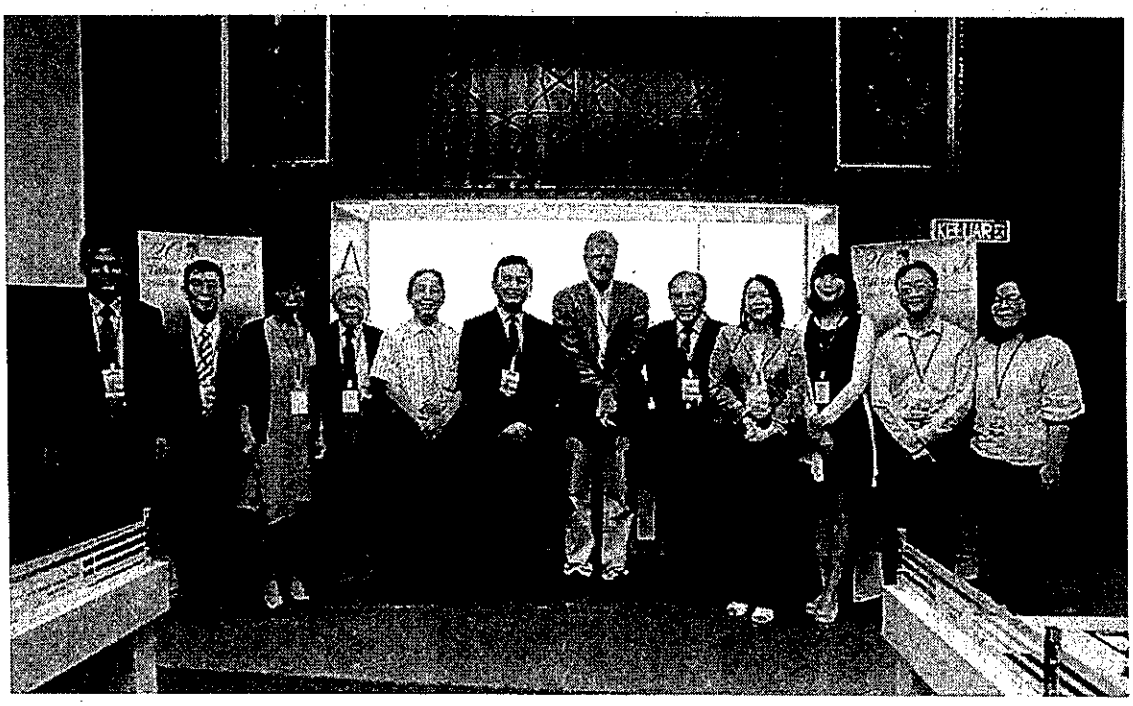
Name of Project Overseer Kim Jong Sun
Date: July 21, 2014

Workshop photos









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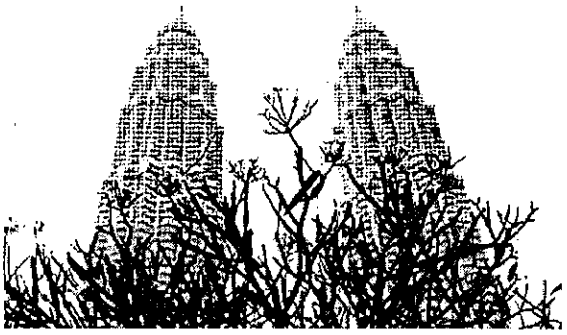
UNIVERSITI KEBANGSAAN MALAYSIA

APEC VIRTUAL CENTRE MALAYSIA –

Nik Mohd Noor Faizul Md Saad

Institute for Environment and Development (LESTARI)
The National University of Malaysia (UKM)

GREEN TECHNOLOGY INITIATIVES IN MALAYSIA; CURRENT STATUS



Malaysia has recognised **green technology** as one of the **key drivers of national economic growth**. To achieve this, the Government is currently reorienting its policies to promote and develop green production.

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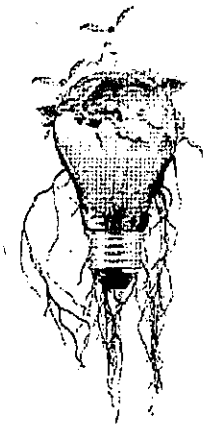
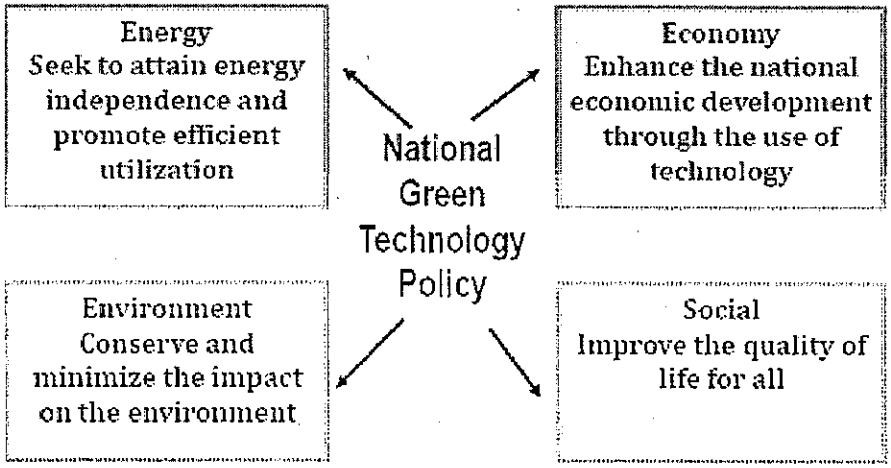


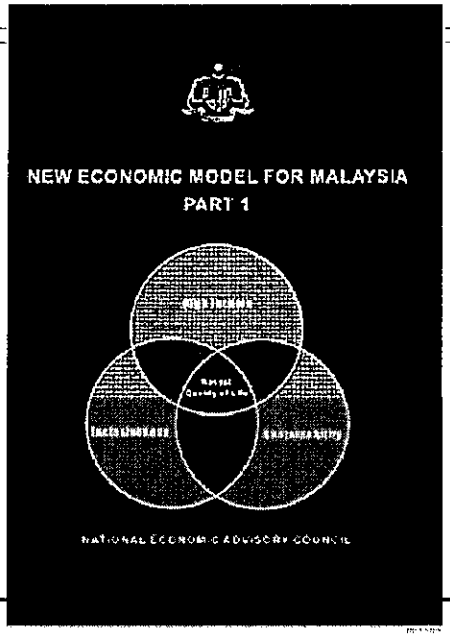
In developing the Green Industry in Malaysia, the Malaysian Government had introduced the **National Green Technology Policy on 24 July 2009**. The policy focused on 4 pillars, namely **Energy, Environment, Economy and Social**. Green Technology shall be a driver to accelerate the national economy and promote sustainable development.

At the United Nations Framework Convention on Climate Change (UNFCCC) Conference of Parties – 15 (COP-15) in Copenhagen back in 2009, our Prime Minister, YAB Dato' Sri Mohd Najib bin Tun Abdul Razak made a pledge that Malaysia would **reduce** her **carbon intensity** by **40 percent as compared to 2005 levels by the year 2020**, subject to financial and technological help from the developed countries.

NATIONAL GREEN TECHNOLOGY POLICY

- **..is built on four pillars**





Going green **can unlock opportunities** for **economic growth** by contributing to fiscal consolidation, **enhancing productivity** through greater efficiency in the use of natural resources, opening up new markets for green technologies, goods and services.

Developed markets have far been adopting green growth in their **economic sustainability.** This can be seen from number of companies that are well-known for their green concerns in their branding or actively undertaking R&D activities to produce more eco-products for their company. To name a few: First Solar from Germany, Panasonic & Sony from Japan.

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Recognising the importance of adopting green technology, the Government has made available several incentives as well as policies to promote the adoption of green technology by industry, namely:

A. **Pioneer tax incentives** for companies in areas such as energy conservation and generation, renewable energy, waste recycling, natural gas vehicles and hybrid cars.

B. **100% import duty waiver** for electric and hybrid cars until end 2013. The government will soon announce the revised National Automotive Policy which will help to spur the growth of this electric and hybrid cars segment.

C. The Government has established a fund called the **Green Technology Financing Scheme (GTFS)** amounting to RM1.5 billion. This fund provides soft loans to companies that supply and utilize green technology such as retrofitting of energy efficient appliances into their businesses.

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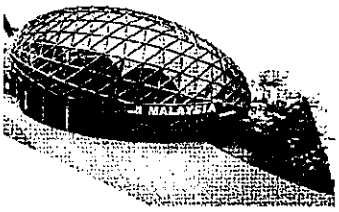
D. The Government will **subsidize two percents of the total interest rate**. In addition, the Government will also provide a guarantee to the lenders for 60% of the loan amount. Loan applications can be made through the Malaysian Green Technology Corporation.



E. On the other end of the spectrum, buyers purchasing buildings with green building certification from developers are given **stamp duty exemption** on instruments of transfer of ownership. The exemption amount is equivalent to the additional cost incurred in obtaining the green building certification. This exemption is given to buyers who execute sales and purchase agreements from 24 October 2009 until 31 December 2014.

LESTARI

Our Commitment Towards sustainable Development: LESTARI-UKM

The establishment of APEC VC is in line with a very **significant efforts** towards environmental sustainability that has been done by the Institute for Environment and Development (LESTARI) Universiti Kebangsaan Malaysia (UKM) as a focal point for environmental technology in Malaysia since 2006.

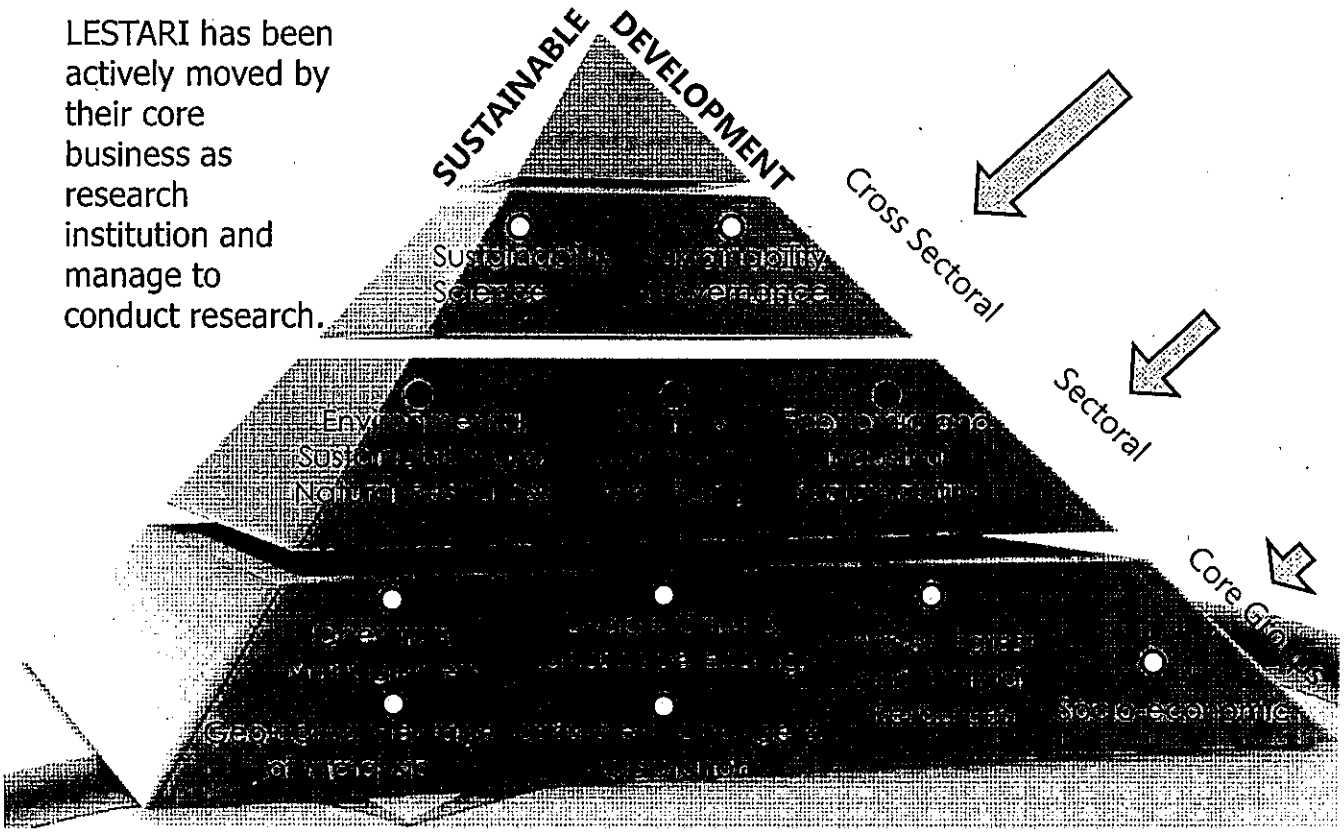
The establishment of LESTARI is to realize the goal of sustainable development through research and capacity development.

LESTARI

Institute for Environment and Development (LESTARI)

Integrated and Holistic Approach

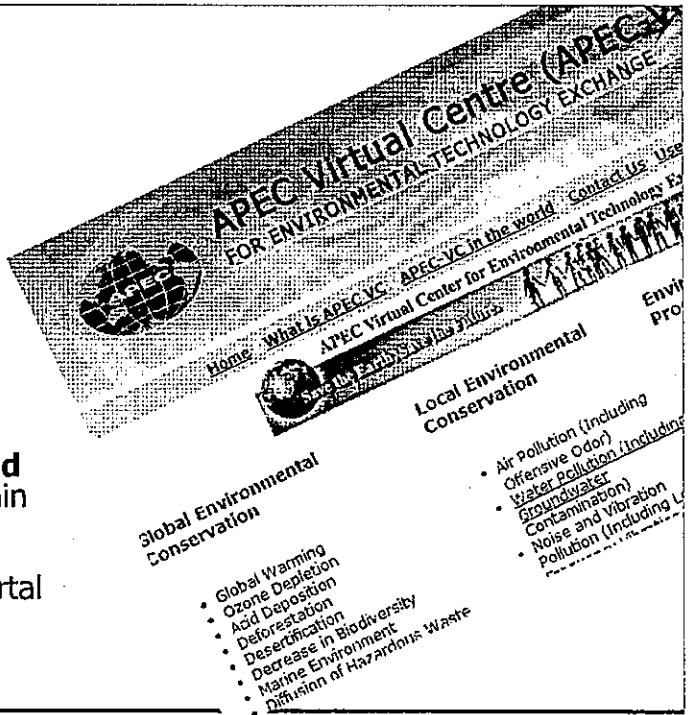
LESTARI has been actively moved by their core business as research institution and manage to conduct research.



Current Situation

1. Information Platform

Since 2006, LESTARI starts to development the APEC VC Malaysia portal (**www.ukm.my/apecvc**) to gather information on environmental technology in the country.



In 2009, the portal **has been moved** from LESTARI main server to the main server at the UKM Information Technology Centre to enhance their access stability of the portal. The portal is now can be accessed at www.ukm.my/apecvc .

All the information in the portal is always being updated based on available local information from government sectors, NGOs and Private sectors.

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Current Situation

Some Current Highlighted Research Projects:

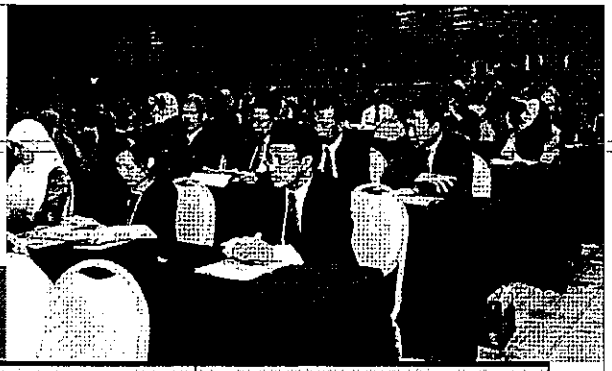
Research Projects	Funder
Establishment of Sustainability Science Demonstration Pilot Project on Restoring and Managing Langat River, Malaysia for Future	UNESCO
Estimation for Flood Disaster Damage and Losses in area of Kajang, Selangor Malaysia	Global Change System for Analysis, Research and Training (START)
Development of a model for Water Governance of Selected Urban Areas in Langat Basin, Malaysia	MOHE
Politics, Governance, Experiences and Responses to Flooding from the Locals and Migrants Perspective in Asian	MOHE
Assessing Community Risk Insurance Initiatives and Identifying Enabling Policy and Institutional Factors for Maximizing Climate Change Adaptation and Disaster	IGES , JAPAN

Current Situation

Some Current Highlighted Research Projects: (CONTINUE..)

Research Projects	Funder
Upscaling of MSMA Ecohydrology at the Catchment Level (Sg. Langat)	Research Univ Fund
Development of a model for Water Governance of Selected Urban Areas in Langat Basin, Malaysia	Research Univ Fund
Development of Optical Microsensor for Edible Bird's Nest Based on Chemically and Biochemically Functionalize Acrylic Microspheres and Microthin Membrane	Research Univ Fund

Current Situation



Some Highlighted activities:

Activities	
UNESCO Water Watch Programme for Young Leaders	Mei, August, September & October 2015
International Workshop on Sustainability Science	March 2015
Ecosystem Discovery Journey for Eco Volunteers	October - November 2015
Sustainable Community programme	April, June, August & December 2015
3Rd International Conference on Limits to Growth	December 2015

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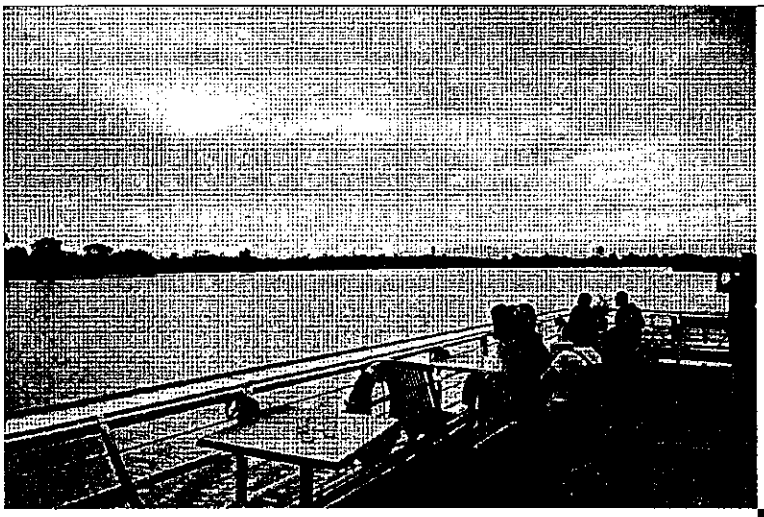

Terima kasih

Thank YOu

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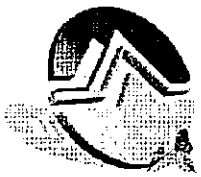
The Development of EnviroCloud in Taiwan



Presented by : Yu-Ling Liang
Environmental Protection Administration, Executive Yuan,
R.O.C.(Taiwan)

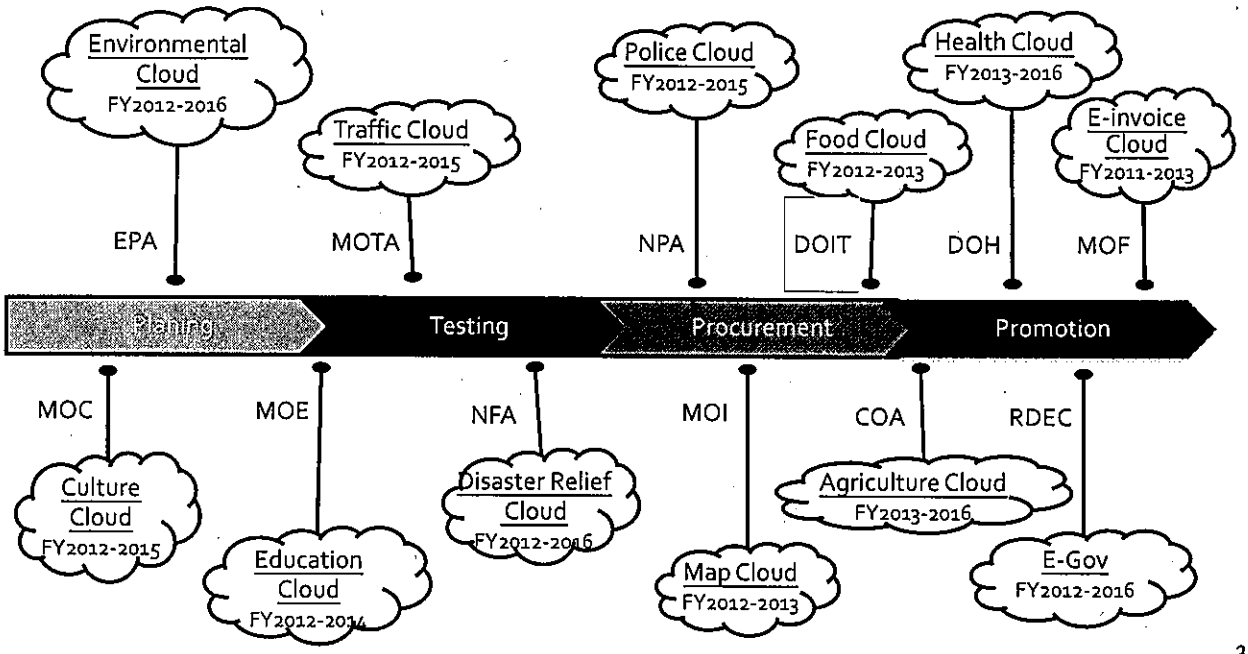
28 October, 2015

Outline

- Background
- Achievements
- Future Issues

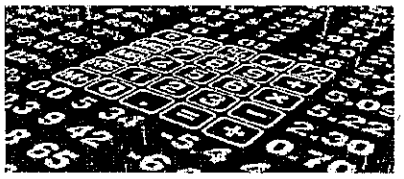
Background

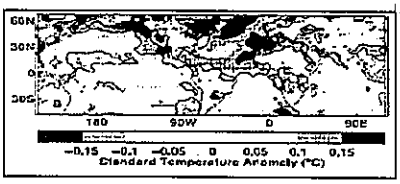
The project was as one of the government clouds in Taiwan.

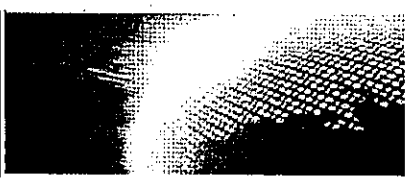


Missions

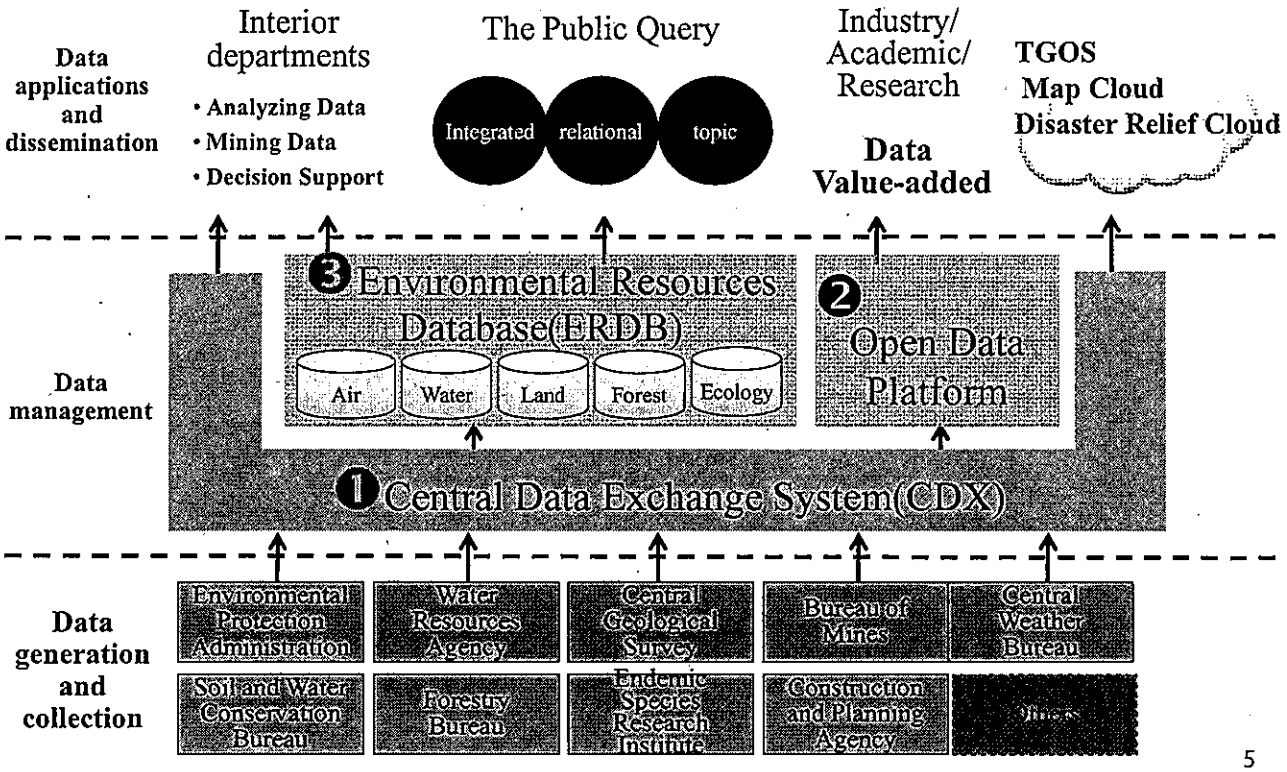
Integrate National Environmental Data	Measure the Value of Data	Promote Data Applications
• **Use emerging information technology**	• **Build a tools sharing platform of data analytics**	• **Follow open government data policy**
• **Implement quality assurance**	• **Use data mining technology to develop integrated data analytics model**	• **Promote applications of environmental data via environmental education**
• **Implement data exchange and SOP**		



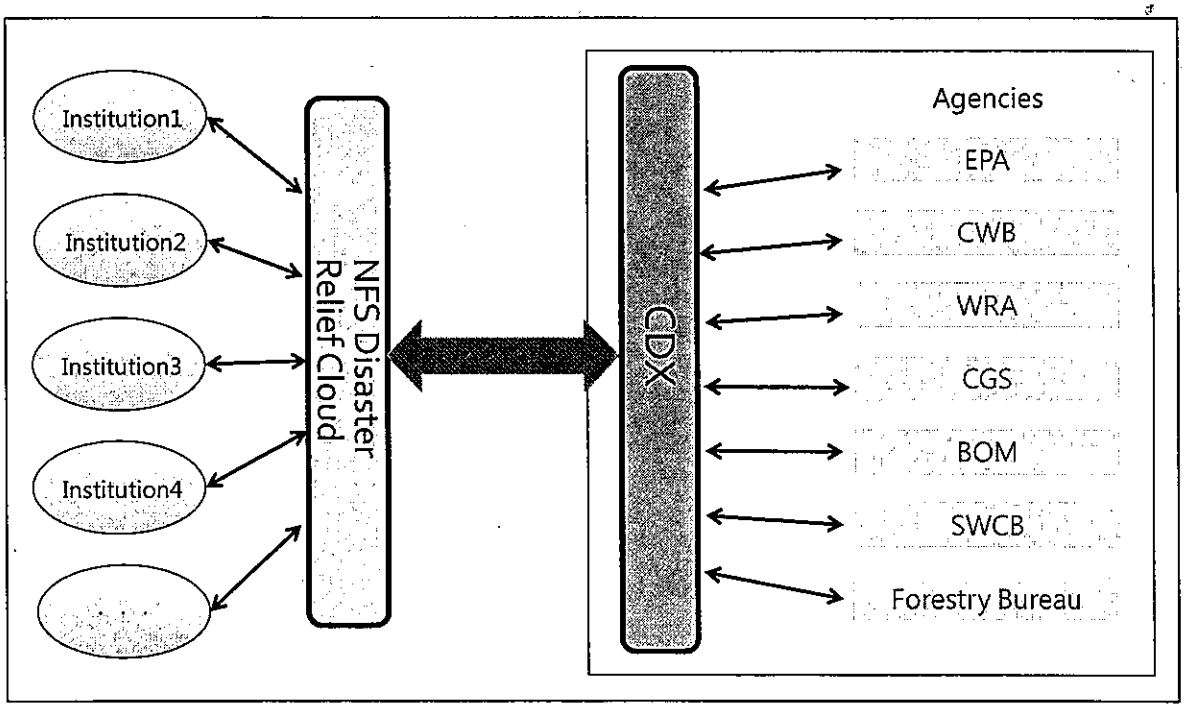




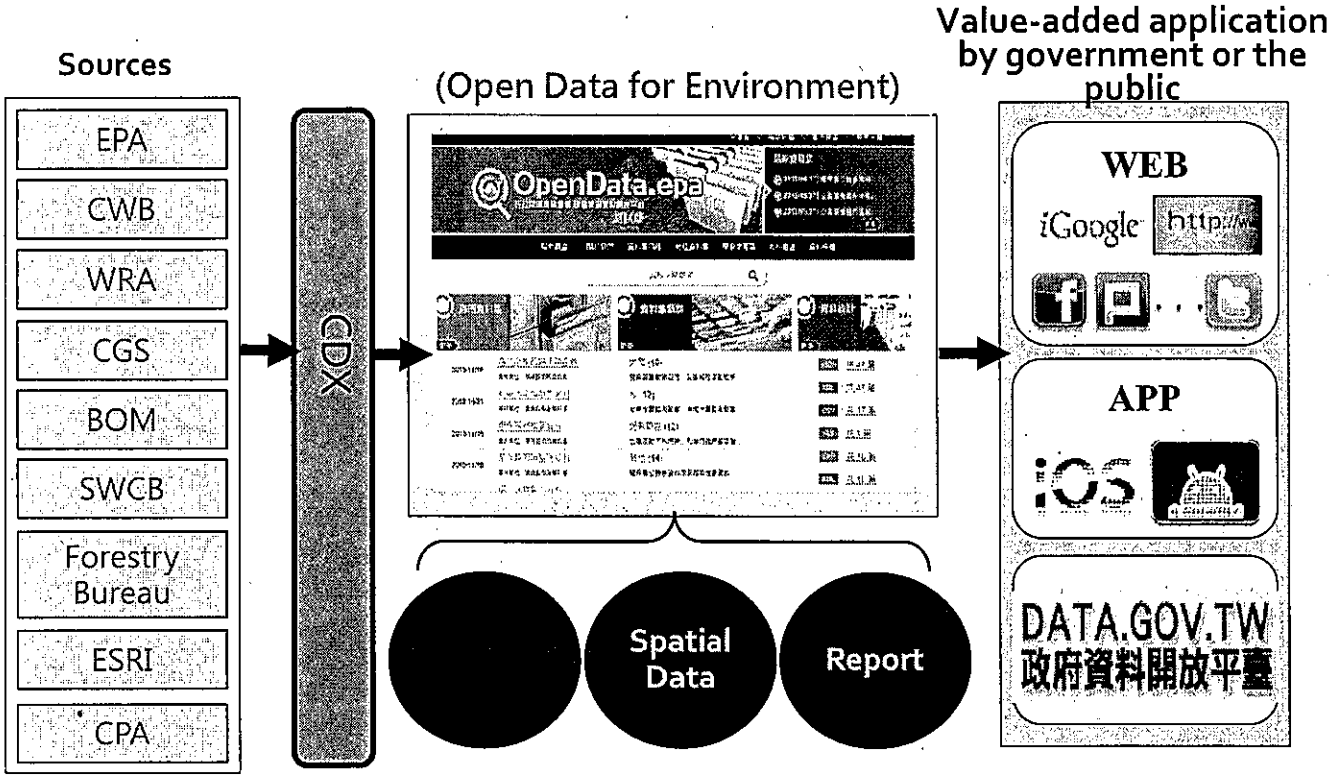
The Architecture of EnviroCloud



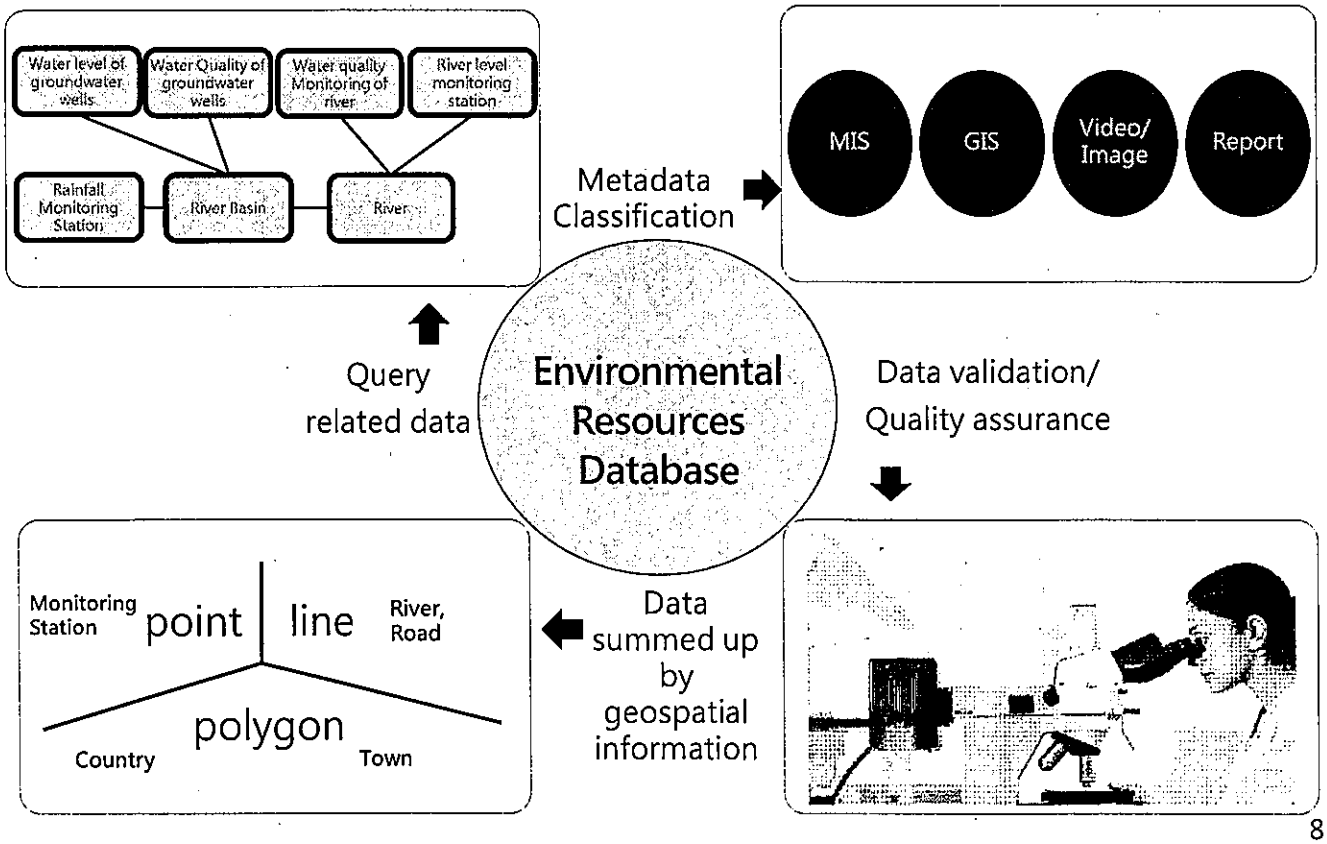
❶ Central Data eXchange System



❷ Open Data Platform



❸ Integrated Database



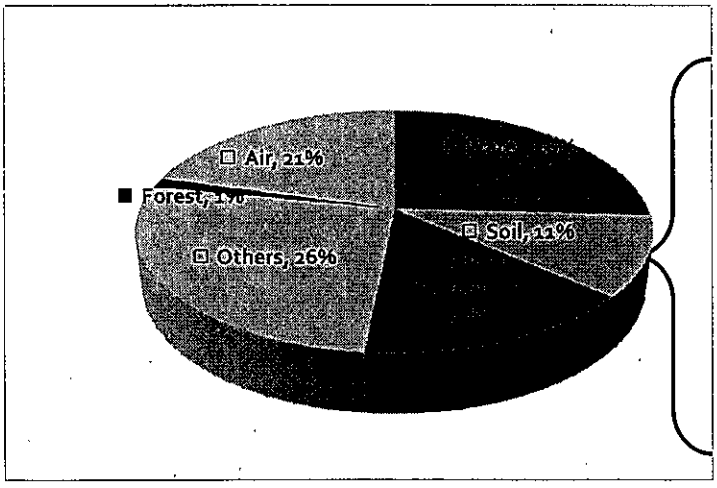
Achievements

1、Expanding the scope of data generation and collection

2、Efficiency cross-domain data exchange

3、Developing data sharing service

1 Expanding the scope of data generation and collection



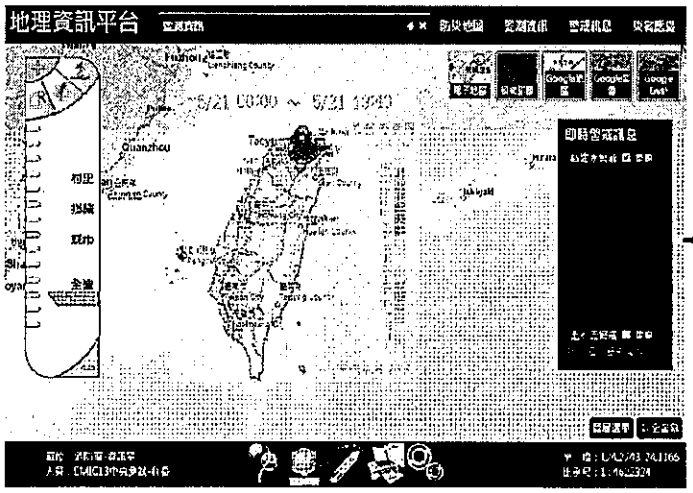
- More than 3.4 million cumulative exchange records
- Integrate 470 data sets including data of air, water, soil, Ecology
- 200 open data of environmental data sets

- Over 98 data sets, including rivers, groundwater, water, environmental monitoring videos
- Update of 590 potential debris flow torrent data

- 2,322 geologic data
- 2.73 million Mineral-related tariff records

2 Efficiency cross-domain data exchange

- Delivering 38 data sets to Disaster Relief Cloud



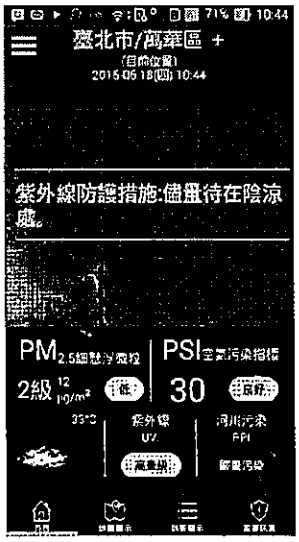
- CWB：real-time weather info., torrential rain advisory, daily cumulative rainfall chart….27 items in total
- WRA：real-time river stage reservoir real-time info., flood damage…6 items in total
- SWCB： warning of debris flow disasters, potential debris flow torrent, Emergency Evacuation Route…4 items in total
- Forest Bureau：forest fire early warning 1 items in total

3-1 Enhancing Open data quality

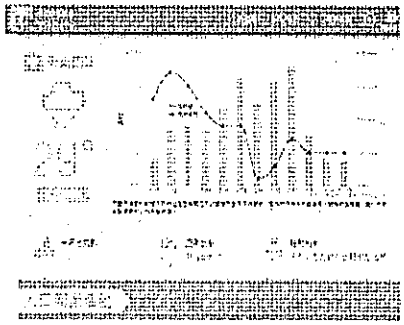
Environmental Open Data Cloud Services

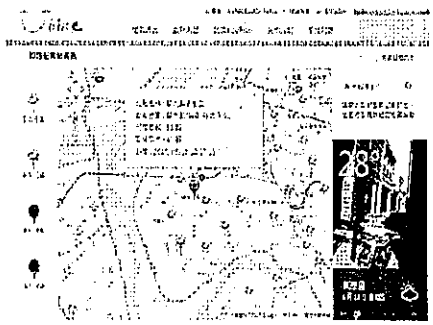
14 million download times

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 (including GIS data)



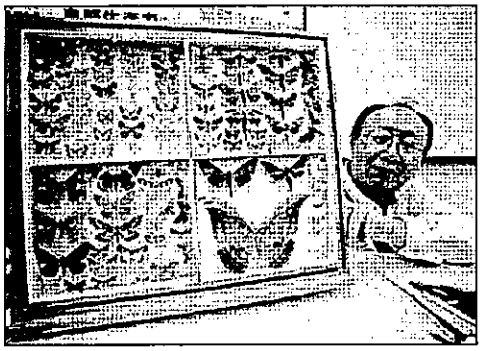
Application Case



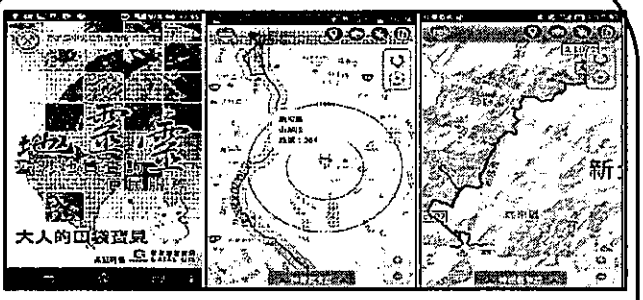


3-2 Provision of Diversified Services

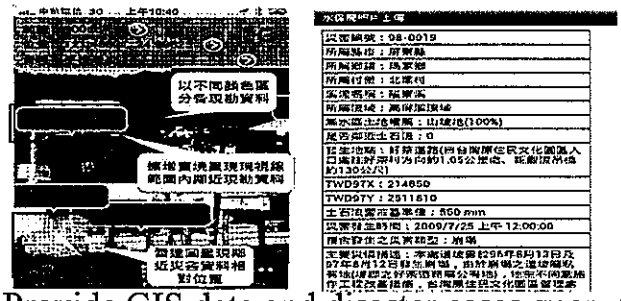
- Open Data for the public to create value-added application: Collect and open 8 data sets, totally 70,000 temporal and spatial distribution of species data records, via crowd sourcing and social networking sites.



Mobile Query Services



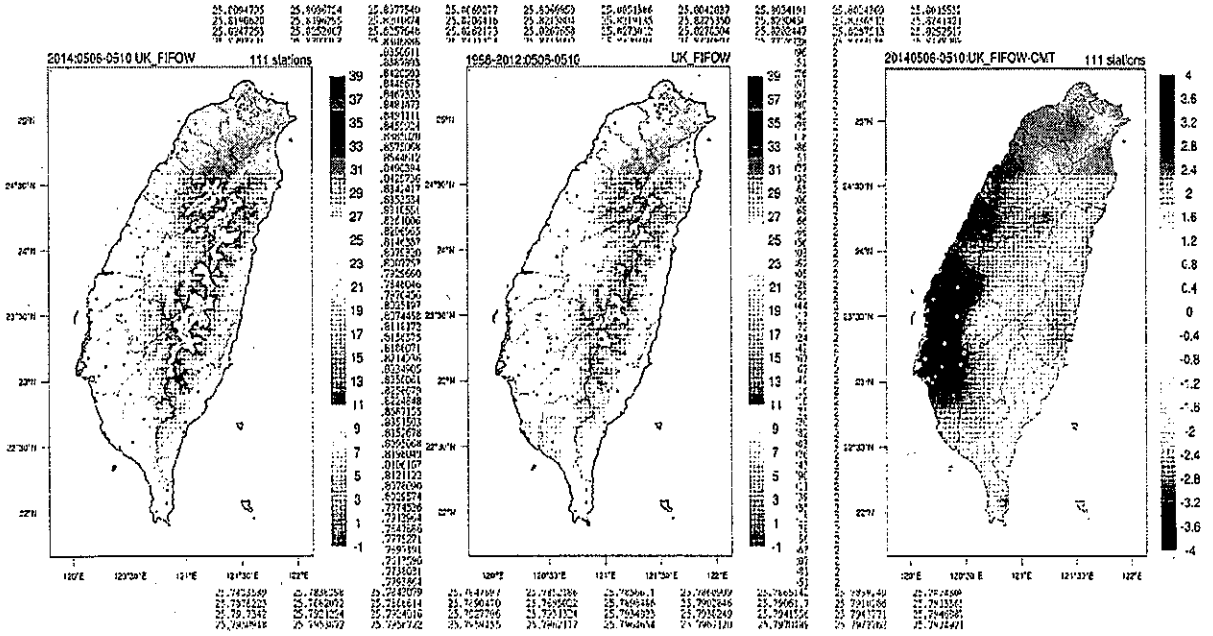
Provide Taiwan geology query service, over 12,455 download times till the end of June in 2015.



Provide GIS data and disaster cases query

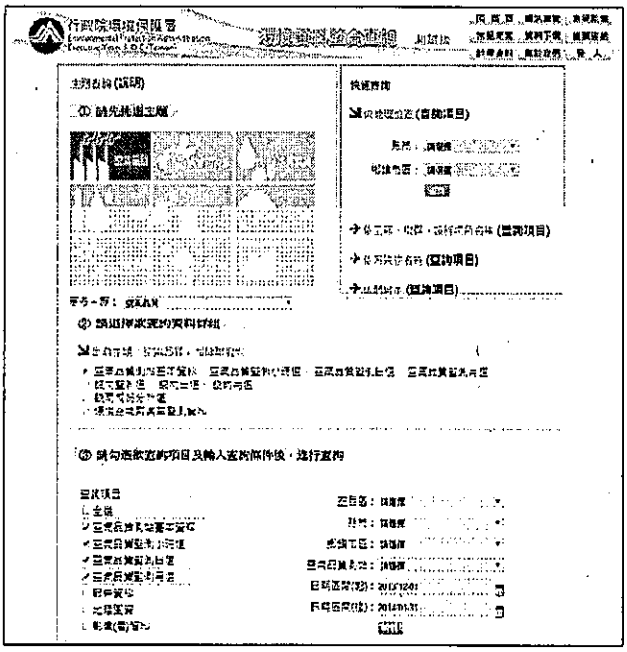
3-3 Expand Data Collection Scope

- Expand data collection scope via budget subsidy: Support Central Weather Bureau digitalize and publish weather data of 2.5km high-resolution grid.

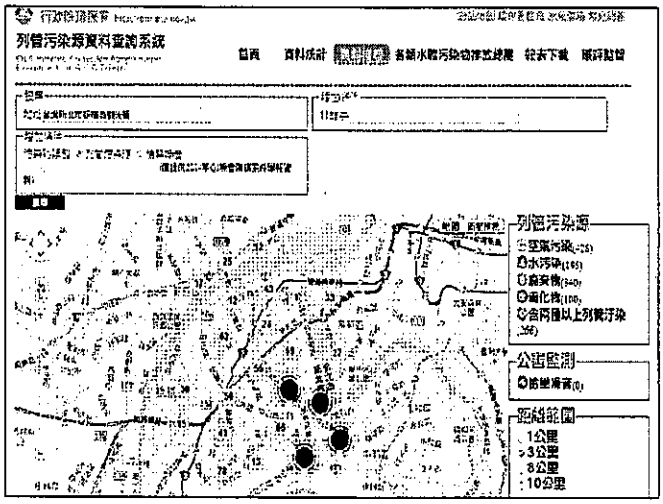


3-4 Query Service of Integration and Visualization

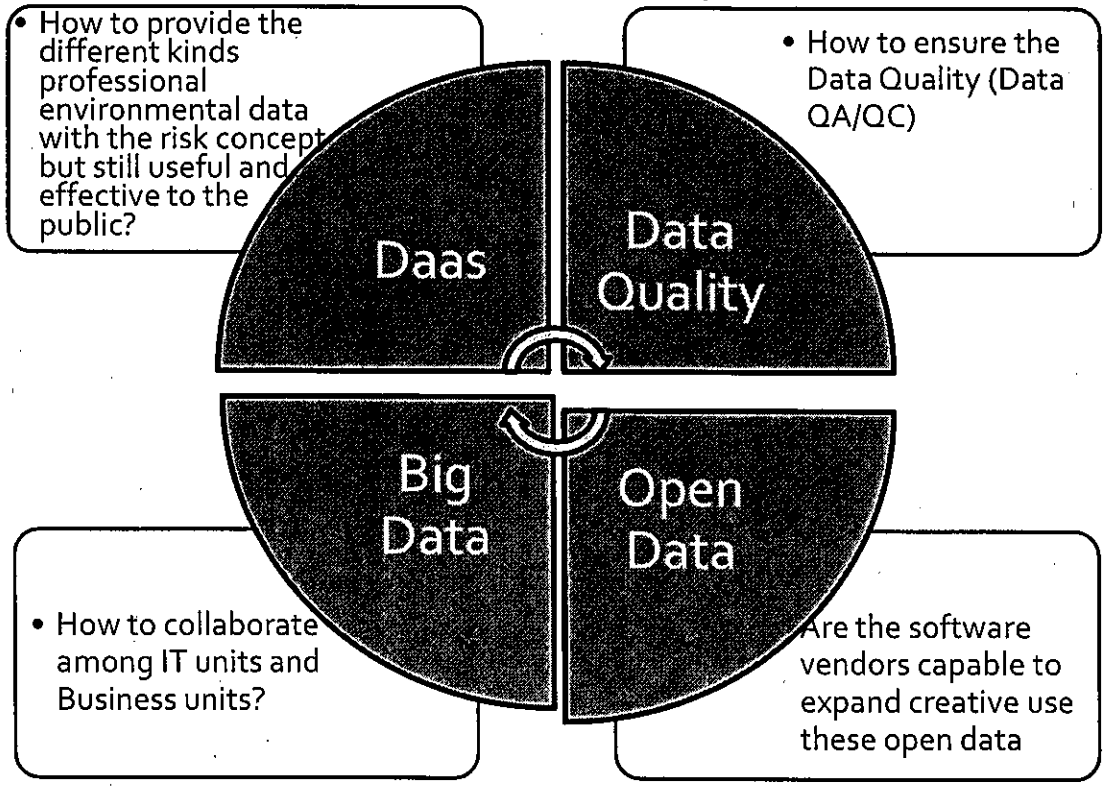
Query Service of Integrating Environmental Information



Visualization Query Service of PRTR



Future Issues



Thank You