出國報告（出國類別：會議）

出席「2007 亞太環保技術交換虛擬中心(APEC-VC)年會」

服務機關：環境保護署
姓名職稱：詹志銘科長
派赴國家：韓國首爾
報告日期; 96 年 6 月 30 日
出國時間：96 年 6 月 11 日至 14 日

表一　　公 務 出 國 報 告 簡 表

出國計畫名稱：出席「2007 亞太環保技術交換虛擬中心(APEC-VC)年會」		
出國人姓名/職稱/服務單位：詹志銘 科長 行政院環保署監資處		
出國日期：民國 96 年 6 月 11 日至 6 月 14 日		
出國期間概況紀要：		
活 動 日 期	活　　動　　內　　容	活 動 地 點
6/11	去程與會前會議	韓國首爾
6/12-13	工作小組會議	韓國首爾
6/14	回程	台北

行程成果評估及心得建議：

亞太環保技術交換虛擬中心(APEC-VC)是日本於亞太經合會工業科技小組發起建置之國際合作計畫，至今已近 10 年，工作會議輪流由各經濟體主辦也促進大家的參與感(我國 2000 年主辦)，各國代表經由多年會議互動，已建立良好交流關係。

APEC-VC 透過各國建立一致性的環保技術交流平台，共享資訊也可擴展環保產業商機，故日、澳、我國、韓國有較多的資訊資源，而東南亞及南美開發中國家則多提出人力訓練等援助要求。

環境污染與保護是跨國界的議題，本次會議我國提出環境監測資訊與技術的交流，得到許多正面的迴響，我國在環境監測技術已累積不少能力，廠商陸續到中國大陸擴展商機，本署亦正評估協助中南美邦交國建置空氣品質監測站，環保交流是互利的行為，亦可得到參與國際合作的機會，值得推動。

目錄

出席「2007 亞太環保技術交換虛擬中心(APEC-VC)年會」出國報告

壹、 會議背景說明

一、亞太環保技術交換虛擬中心(APEC-VC)爲日本 1995 年 5 月於亞太經合會(APEC)工業科技(IST)分組會議上首先提出，APEC-VC 成立的宗旨在利用網際網路分享各經濟體環保技術資訊，加速區域性環保技術合作與促進地球資源保育。日本、我國和澳洲是最先完成 APEC-VC 網站架設國家，目前已完成十一個 APEC-VC 會員體網站。工作小組會議每年召開一次，日本、澳洲、泰國、越南及我國均曾主辦過工作小組會議，我國參與本項交流活動已與各國代表建立相當的友誼，中華台北 APEC-VC 網站的維護推廣工作均由環保署監資處負責。

二、日本向亞太經合會申請的 APEC-VC 計畫將於 2007 年到期，爲延續相關合作成果，日方將於今年 10 月向工業科技小組爭取繼續辦理，另日方也於 2007 年 6 月召開的工業科技分組會議提出新的合作計畫—節能及新能源科技之產官學合作研討會，以爭取基金支援，預計可順利通過。

三、環保技術的範圍包括全球性的環保問題、區域性的環保問題與環保相關的法規、計畫、標準、制度等資訊。我國 APEC-VC 網站提供國內歷年科技研究英文摘要與中文全文、環保法規、環保政策月刊、環保業者，並有環保署英文網頁的內容及國內環保網站的連結。

四、我國與日本、澳洲爲 APEC-VC 搜尋引擎小組成員，合作建置 APEC-VC 的搜尋入口網站，2002 年簽署有建置搜尋入口網站的協議書與備忘錄，總建置費用 US$21,600，我方負擔 2000 美元，由澳洲建置並維護。

貳、 會議經過

一、2007 亞太環保技術交換虛擬中心年會於 6 月 11 日至 13 日在韓國首爾市召開，共有日、澳、韓、中、菲、馬、越、泰、印尼、智利及我國共十一個經濟體三十餘人與會。我國由環保署監資處詹志銘科長代表與會，議程與會議資料詳附件一。

二、開會地點在韓國首爾市江南區三成洞 COEX International Seoul Hotel 地下一樓 VIVACE 會議廳舉行，與會代表則統一住宿於 Grand Intercontinental Seoul Hotel，距離開會會場有 15 分鐘的步行距離。

三、6 月 11 日

第一天晚上各國代表步行至 COEX 旅館 30 樓，先進行會前會議，由韓方人員報告相關議程安排，並共進晚餐。

四、6 月 12 日工作小組會議

(一) 會議主席由擔任，上午開幕式先後有韓國環境部次長、主辦單位環境科技院(Korea Institute of Environmental Science and Technology)總裁、日本 APEC-VC 主席等歡迎致詞。然後是兩個專題演講，分別由韓國環境部(MOE)主管科技的課長 Kim Nuk-bin 報告其環境科技研發、日本通產省關西經濟產業局(METI)國際投資課長高木英彥(Hidehiko Takaki)報告其 APEC-VC 的推動。

(二) 接著是是各經濟體的報告與討論，題目是 APEC-VC 未來的方向，澳洲報告澳洲國立大學(ANU)環境科技交流成果；中國報告其與聯合國、世銀、亞銀等國際組織環保合作成果；菲律賓報告其環境科技研究計畫推動；馬來西亞報告其技術移轉機構；印尼強調其需人力訓練支援；智利提出其乙醇動力的利用研發；越南指出需各國協助其建立標準與 e-learning；泰國則分享其推廣小型旅館自願參與減廢的作法。

(三) 我國是排在下午，報告我國在環境監測之建設與技術能力，並提

出跨國污染與氣候變遷等合作監測構想(詳附件二)，我國環保署透過環境監測發展經建計畫，陸續完成全國 76 個空氣品質測站更新、建置 8 個光化測站、5 個超級微粒測站、1 個光達測站、1 個剖風儀、1 個二氧化碳通量測站，並在鹿林山上(海拔 2862 公尺)建置國際背景監測站，監測汞、酸雨、跨境微粒污染等，與美國太空總署簽署技術交流協定，在沙塵暴、東南亞褐雲、全球氣候變遷等監測方面均可提供技術、經驗與監測數據之交流。(詳附件二)

(四) 下一階段報告的主題是 APEC-VC 推動的新計畫，由日本報告其爭取新的合作計畫—節能及新能源科技之產官學合作研討會相關內容，再由韓國報告其 APEC-VC 網站提供虛擬商展的構想，韓國將負責開發虛擬商展所需的平台費用，系統完成後將提供各經濟體使用。

(五) 綜合討論由菲律賓代表擔任主席，澳洲表示網際網路 10 年來已有許多的變化，建議 APEC-VC 的名稱也配合進行調整，加入永續發展(Sustainability)字眼，討論異常熱烈，許多修正建議紛紛提出，但日本表示 APEC-VC 多年來已建立知名度，永續發展非工業科技組之業務，且換名稱可能無法繼續取得經費，最後結論是繼續討論，以後再議。

(六) 接下來決定下次會議主辦國，因無人自告奮勇，日本表示願意在大阪接辦下屆工作會議，會議順利的結束。

五、6 月 13 日學習之旅

(一) 本日韓國主辦單位安排環保學習之旅，陸續參訪 ENVEX 污染防治器材展、Suwan 三星半導體工廠、Sudokwan 垃圾掩埋場及 EMC 環境管理公司等。

(二) ENVEX 2007 是韓國舉辦的第 29 屆的國際環境科技與產品的展

覽，會場就在 COEX 的國際展覽館，攤位共 255 個，以韓國廠商的攤位(159)爲主，其次爲德國(23)、日本(18)、美國(15)，對象多是韓國人，對外國人而言語言文字均有困擾，我國分別有一家水污染防治與一家資源回收的廠商參展。

(三) 三星(SAMSUNG)電子其 Suwan 工廠員工即有 2 萬餘人，其產品有手機、電視、記憶體、螢幕、家電等，SAMSUNG 的品牌知名度在全球排名已提升至 20 名，其新產品展示中心展示家庭劇院、LV 手機、彩色 NB、手機電視等，參觀者絡繹不絕。

(四) Sudokwon 垃圾掩埋場是世界最大的垃圾掩埋場，收集首爾(52%)、仁川(15%)、京畿(33%)共 2500 萬人口的生活垃圾，每日 18 萬噸。1991 啓用，分期開發，計畫 1992-2022 年 30 年內掩埋 2.5 億噸的廢棄物，已通過 OECD 高環保標準查核。掩埋場以 5 公尺爲一單元，堆至 40 公尺即封閉改善綠化，沼氣收集之發電量高達 50MW，除自用外並售電給電力公司。封閉改善綠化後規劃爲生態環保休閒等多用途公園使用，第一期運動公園部份正陸續完工中。

(五) EMC(Environmental Management Corporation)距離 Sudokwon 垃圾掩埋場不遠，是半官方的國營企業，其 Clean sys 部門負責國營電廠、石化廠等煙囪的空氣污染物即時監控，依韓國 Air Conservation Act 規定，目前僅國營企業需要每月申報污染排放量，故多委託 EMC 執行，監測項目包括 Dust, SO2, NOx, HCI, HF, NH3, CO 等並每日遙控執行校正。

(六) 晚上日本 APEC-VC 招待全體搭乘遊輪遊漢江，因爲是最後的相聚活動，大家情緒熱烈，互相交流拍照留念，回到旅館已經很晚，互道再會，也都筋疲力竭了。

參、　心得與建議

心得

一、APEC-VC 計畫一直是由日本努力在推動，於網站充實環保技術與商品資訊，將網路資訊交換當作重要的國際合作與商機所在。因爲各國的經濟與技術水準差距很大，許多會員體網站的環保技術資訊均只聊備一格，但我國推動的許多環境管理政策如空污費徵收、監測網、機車定檢、資源回收等均已英譯上網，是能夠提供開發中國家管理借鏡。

二、APEC-VC 網站的建置基本上花費並不多，資料新增亦可量力而爲，而團結力量大，這種跨國連鎖的網站合作方式對國際的環保技術交流是有正面的效果。

建議

一、 國際交流均以英文爲主，我國許多的網頁資訊要提供英文的版本才能有交流的實質效果，韓國在電子化政府的網站評比上爲世界第一，我國緊追在後爲第二名，瀏覽韓國政府機關網站均提供有多種語言的版本，以首爾市的政府網站而言即有韓、英、日、西、法、中(簡)、中(繁)等 7 種語言版本，建議加強國內語文人才的培養或是增加投注於委外翻譯之經費。

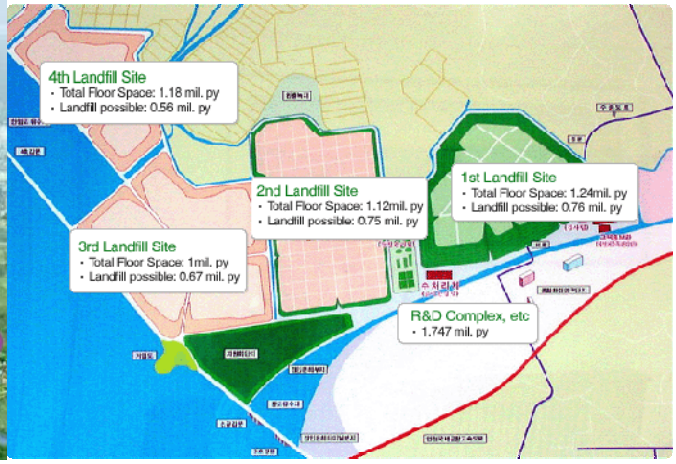
二、 增加本署英文網站資料內容，可以同時豐富我國 APEC-VC 網站的搜尋結果，環保署研究成果報告(含英文摘要)透過內部管控流程，目前均已上網公開，本署今年正委外建置署英文網站，若有持續的更新機制，將可同時豐富我國 APEC-VC 網站內容，也提升我國環保技術資訊分享能力。

2007 APEC-VC 工作小組會議成員合照

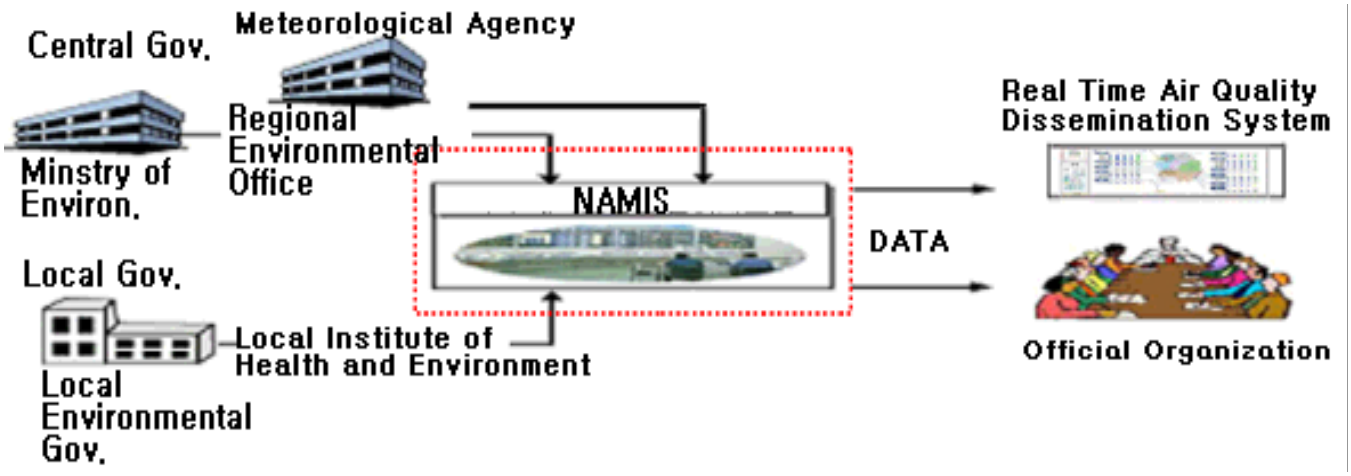
參觀三星電子 SUWAN 廠展示中心

參觀 ENVEX 環保污染防治器材展之環境科技院(KIEST)參展攤位

參觀 SUDOKWON 垃圾掩埋場



EMC 環境管理公司監測資料分享架構圖



附件一

2007 APEC Virtual Center for Environmental
Technology Exchange Overview of Seoul Workshop

APEC-VC Korea
APEC-VC Japan

1. Purport

In the wake of the improved living standard, developed motorization and advanced industrial sector, the amount of energy consumption is expected to keep soaring in the years ahead in the APEC region made up of many developing countries. Coupled with economic growth and increase in population, emissions of carbon dioxide will be expected to increase remarkably. We consider it really effective to disseminate information on technology of countries, which have achieved high –effects on reduction of carbon dioxide emissions through adopting energy-saving technology, taken advanced energy saving measures and attained comparatively high-energy effects on the global level, to the APEC region via a framework of the APEC Virtual Center for Environmental Technology Exchange (hereinafter called "APEC-VC"). Under this circumstance, we think it important to extend what such developed countries achieved to the international level as a part of driving force in international cooperation to take measures for global environment and Japan, Korea and other developed economies in the APEC region are expected to play an active role in this field.

The APEC-VC Project is to launch Virtual Center (hereinafter called "VC") in each economy in the APEC region, interactively provide environmental technology and information owned by governments, businesses and environmental organizations over the Internet and promote information exchange on environmental technology by connecting each VC organically for the big network, with a purpose of contributing to the improvement of environmental conservation in the APEC region and on the earth.

Currently, VC is in operation in 11 economies including Japan which was firstly launched in April, 1997, Australia, Chinese Taipei, China, Philippines, Vietnam, Thailand, Chile, Indonesia, Korea and Peru. In the near future, other APEC economies including Mexico, Malaysia are expected to join the network.

We aim at contributing to preventing global warming such as reduction of carbon dioxide emissions in developing countries through the effective coordination between APEC-VCs. As for the linkage with the APEC-VC network, we provide a venue for discussion in the form of workshop where policy-makers in charge of APEC-VC discuss what can be done in order to achieve the project goal and try to reach agreement on specific measures and implementation period.

2. Theme：”Seeking practical ways for exchange of environmental technology information in the APEC region based on the APEC-VC network”

3. Date：June 11 (Mon) – 13(Wed), 2007

4. Venue：Grand Intercontinental Seoul Hotel, Seoul, Korea

5. Participants：Officials in charge of the APEC-VC, coordinators of the VC Project and representatives from related governmental agencies in each APEC economy

6. Language：English

7. Organized by：KIEST(Korea Institute of Environmental Science & Technology)APEC Virtual Center Korea and OSU Exchange Support Center of Environmental and Advanced Technologies in Asia

8. Supported by： Ministry of Environment(Korea)
Ministry of Economy, Trade and Industry, Ministry of the Environment and Embassy of Japan

9. Co-sponsored by：International Center for Environmental Technology Transfer (ICETT)
Support Council for ABAC-Japan

2007 Seoul Workshop Program

June 11 (Mon) Participants from overseas arrive in Seoul

19:00 - 21:00 Introductory meeting and dinner

June 12 (Tue)

09:00 - 09:30 Registration

09:30～10:10 Session 1 : Opening Ceremony

09:30 - 09:35 Opening Remarks by Chairman (Ministry of Environment, Korea)
09:35 - 09:40 Welcome Address by President (KIEST)
09:40 - 09:45 Congratulatory Address by Co-organizer (Japan)
09:45 - 09:50 Group Photo
09:50 - 09:55 Guest's Greeting by Government
09:55 - 10:00 Outline of the Workshop by Chairman
10:00 - 10:10 Coffee Break

10:10 - 10:40 Session 2 : Keynote Report

10:10-10:25 Keynote Report 1 (Representative from the Korea Government(MOE))
10:25 - 10:40 Keynote Report 2 (Representative from Japan Government(METI))

10:40 - 17:00 Session 3 : Report of activities by each economy

"Future Direction for the APEC-VC Project-1"

10:40 - 11:00 VC Australia
11:00 - 11:20 VC Chile
11:20 - 11:40 VC China
11:40 - 12:00 VC Indonesia
12:00 - 13:00 Lunch Break
13:00 - 14:30 Visiting ENVEX
14:30 - 14:50 VC Malaysia
14:50 - 15:10 VC Vietnam
15:10 - 15:30 VC Philippines
15:30 - 15:40 Coffee break
15:40 - 16:00 VC Chinese Taipei
16:00 - 16:20 VC Thailand

16:20 - 17:00 Session 4 : Proposal of New Project

"Future Direction for the APEC-VC Project-2"

16:20 - 16:40 VC Japan

Project supported by APEC Fund

"Industry-government-academia matching seminar for energy-saving and new energy technology"
Proposal of the project and outcome of ISTWG meeting

16:40 - 17:00 VC Korea
Developing APEC-VC Cyber Environmental Exhibition System(ACEES) for exchange of environmental technology and product information.

17:00 - 17:40 **Open Forum** by chairman
17:40 - 18:00 Chairman's summary
18:00 - 18:20 Selection of next workshop
18:20 - 18:30 Closing of Seoul workshop
18:30 - 19:00 Break
19:00 - 20:30 **Reception**
(Buffet dinner with participants, government agencies and businesses)

June 13 (Wed) Environmental Site Tour

10:30 - 12:30 Visiting the ENVEX 2007 and Lunch
10:30 - 11:30 Visiting the ENVEX 2007
11:30 - 12:30 Lunch
12:30 - 13:30 Move to Suwon Samsung semiconductor Factory by bus
13:30 - 14:30 Factory tour

14:30–17:30 Sudokwon Landfill Management Corporation and Environmental Management Corporation
14:30 - 15:30 Move to Sudokwon Landfill Management Corporation by bus
15:30 - 16:30 Presentation by Sudokwon Landfill Management Corporation staff and site tour
16:30 - 16:50 Move to Environmental Management Corporation by bus
16:50 - 17:30 Presentation by Environmental Management Corporation staff
17:30 - 18:30 move to restaurant

18:30 - 19:30 Diner Party

June 14 (Thu) Participants from overseas leave

Plan for the Seoul Workshop

APEC-V

C Korea

APEC-VC Japan

We summarize issues which were discussed at the Hanoi Workshop in 2006.
At the Hanoi Workshop, the discussion on the following issues and the future of the APEC-VC project has been done and covered during the workshop.

The APEC-VC Workshop held in Hanoi, Vietnam, from 2 to 3 November 2006 was considered to be very successful by all the participating economies.

- The outcomes of the HCBEB project were presented at the workshop. A demonstration of the Meta Node and its functionality was also provided. APEC VC Australia acknowledged the support of the APEC Education Foundation based in Korea.
- APEC VC workshop participants were introduced to the KONETIC e-Learning programmme operated by APEC VC Korea. The e-learning programme is a voluntary system provided free of charge to users. The e-learning concept allows anyone to pursue personalized learning at any level and highlights the need for the delivery of educational services and products via the internet. The e-learning programme will run for two years and is supported by the APEC Education Foundation.
- APEC VC examined the option of supporting programmes that have a strong education and training component.
- All APEC Economies provided an overview of their progress and future activities. Malaysia and Mexico will examine the possibility of establishing an APEC VC node in their respective economies. Their participation will enhance opportunities for future collaboration. Malaysia currently has projects in place that could complement future APEC VC activities. There is a need to promote the Meta Node and the APEC VC concept through various media such as international environmental expos, workshops and training courses.
- The workshop participants emphasized the importance of continued cooperation and collaboration.
- Participants agreed that member economies should continue to support technology transfer and development through greater involvement in multilateral programmes such as the Clean Technology and Development Mechanism (CDM).
- There is a need to articulate the intellectual property of information or content on the APEC VC Meta Node and individual nodes.

- To help in the flow of information and to promote discussion amongst APEC economies, APEC-VC project managers will make effective use of the Meta Node E-mail discussion boards.
- The lack of funding to maintain APEC VC websites or nodes is still a major problem for most economies. Every VC will make efforts to upgrade its content.

Finally, a request will be made to the IST WG for an extension of the APEC VC mandate with an emphasis on greater collaboration and training activities. At the same time funding will be sought from the APEC Central Fund in 2007. In the meantime, to ensure continuation of the APEC VC beyond the current mandate, financial support will be provided by METI Japan ICETT NPO OSU, and APEC VC Members in 2007. APEC VC Korea host the next workshop during 2007.

1. Purport of the Workshop

At the workshop where officials in charge of APEC-VC gather from each APEC region and country, participants discuss what measures should be taken in order to improve the quality of environmental technology information disseminated and to facilitate technology transfer and environmental business based on the interactive exchange of environmental technology information utilizing the network. We intend to reach agreement on specific measures and implementing period to be reflected into the development of the next year's VC project plan. Based on the result of discussion, after the workshop, we grasp needs on environmental technology in developing countries and compile measures to develop a framework for environmental technology business and make use of the network in environmental technology transfer and environmental business, with an aim at effectively promoting environmental technology transfer and business into developing countries.

2. How to conduct the workshop discussion

The style of the workshop consists of reporting and discussion sessions done by participants from each economy as it was done at the Hanoi Workshop, leading them to exchange their ideas actively in a free atmosphere in order to reflect each VC's opinion. Specifically, we set a theme for each session and put a point of discussion together, based on reports made by each participant, in order to encourage further discussion. (However, we as Secretariat of the Workshop prepare the final direction of the discussion and make efforts to provide a venue where discussion can be done as effectively as possible. **Annual reports presented by each VC** are attached to the materials for the workshop in order for participants to share problems that each economy has.)

3. Content to be discussed at each session

Discussion materials for each session are as follows.

1) Session 1, 2

Session 1, 2, opening ceremony and keynote report will be addressed by representative of government official Korea and Japan to welcome 2007 APEC-VC Seoul Workshop.

2) Session 3

Each economies are going to discuss report of economy's activities and future direction for the APEC-VC Project as the theme of " Seeking the ways for exchange of environmental technology information in the APEC region based on the APEC-VC network".

3) Session 4

APEC-VC Japan is going to report the proposal of "Industry-government-academia matching seminar for energy-saving and new energy technology : for APEC Fund and the outcome of IST-WG meeting participation and participants are encouraged to exchange their opinions on how to implement the project. They are requested to submit a report(one page in A-1 size, about energy situation, problem, needs and etc.) to Secretariat in advance. After sharing all the information submitted by them, they express their ideas, comments and etc. in order to seek a direction that every economy finds.
APEC-VC Korea is also going to make presentation on APEC-VC Cyber Environmental Exhibition System(ACEES) which is able to exchange information of environmental technology and product on the website. In workshop, we are going to discuss future plan and direction of ACEES to seek practical way for APEC-VC economies participation.

Open Forum

Based on discussion made during workshop, participants exchange their opinions through the workshop, discuss what can be done in joint efforts in order to make the financial status of each VC stable and try to reach an agreement. Also, the next workshop host economy is announced.

附件二

Progress Report on APEC-VC Chinese Taipei node

Chih-Ming Chan
Director
Department of Environmental Monitoring and Information Management
Environmental Protection Administration
Chinese Taipei

The APEC-VC website of Chinese Taipei operated normally in the past year. Most web pages are about pollution control action assessment and management plan, Restricted by our duties scope, ecological and technical documents are relatively fewer. The laws and regulations are translated into English more efficient. Waste Disposal Act, Air Pollution Control Act, Environmental Agents Control Act and Drinking Water Management Act are all revised and published in the website.

A total of 312 research reports were uploaded to the environmental database last year. We already have 1.5 thousand records in the database. The database has been opened to the public. Although the original PDF document is in Chinese, the title, keywords and abstract are in both Chinese and English.

Our Environmental Policy Monthly published and uploaded to the website regularly. That circulates the latest environmental information in Taiwan. The database of Taiwan’s environmental companies was maintained by an association to keep the data up to date.

Soil and groundwater pollution remediation subject got a special area in the web. Five major types of soil pollution are heavy metal pollution in farmland, gas station pollution, large storage tank pollution, illegal dumping site pollution, factory area pollution. We charge remediation fee from chemical companies. There are top 20 chemicals worthy of noting as giving the most remediation charge payment among these 125 chemicals in 6 categories. Petroleum gives the most charge payment, which is 61.63%。

Municipal solid waste is not a problem now in Taiwan. Industrial waste treatment was regulated strictly. There are 2900 industrial waste clearance vehicles equipped with GPS. The vehicles report their position immediately and continuously to the control center when they are on the road. In order to reduce the amount of garbage, a regulation was given to restrict excessive packing. In public office, disposable plastic tableware or paper cups were prohibited from using. The recycling rate of the municipal solid waste has increased to 35%.

There are four 'Environmental Science and Technology Parks' constructed in Taiwan. This plan is aimed at stepping up the cycling and sustainable use of substances to reach the goal of recycling and renewing material resources annually. We want to introduce environmental technologies and develop new green industries. Incentive measures that are given to companies in the Parks were all put in our website.

As the environmental protection industry is one of our strategic industries, we hope to have more environmental companies to involve in the Chinese Taipei APEC-VC international cooperation.

Future Direction for the APEC-VC Project

--Environmental Monitoring Cooperation

Chih-Ming Chan
Environmental Protection Administration
Chinese Taipei
June 12, 2007

Background

- Global warming
- Dust storm
- Acid rain
- Atmospheric Brown Clouds
- Biomass burning
- long-range trans-boundary transmission of pollutants

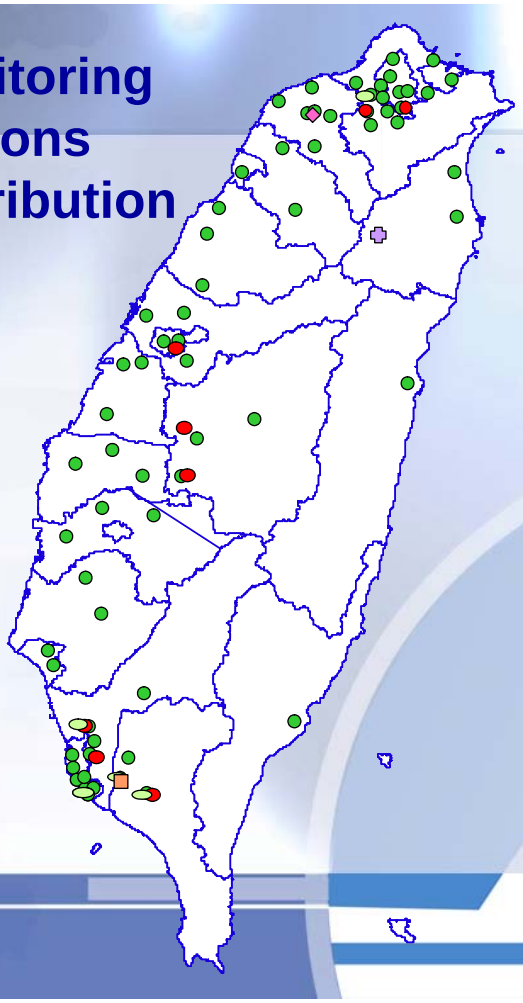
Environmental monitoring

- the foundation of environmental protection
- keep residents aware of the state of the environment
- evaluate the performance of environmental protection action
- a reference to draft regulations and policies

Air Quality Monitoring in Chinese Taipei

- 76 ambient air quality monitoring stations
  - pollutant monitoring equipments: PM10, PM2.5, NO_2, CO, O_3(ozone) and HC(hydrocarbons)
  - Automatic round the clock monitoring
  - Weather observation equipments: wind direction, wind speed, temperature, humidity, rainfall and acid rain
  - Equipments upgraded in 2005
- 4 mobile AQ monitoring vans

Monitoring Stations Distribution



- 76 air quality monitoring sites
- 8 photochemical assessment monitoring stations
- 5 aerosol supersites
- 1 Micropulse Lidar station
- 1 wind profiler station
- 1 FluxNet station

Particulate Matter Supersite

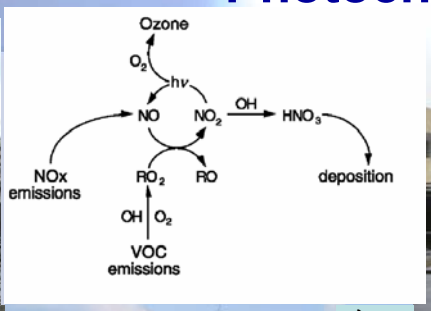
- Suspended particulate matter (also called PM or aerosols) is major pollutant
- To understand the reasons for pollution and factors causing changes in PM
- 5 aerosol supersites: 1 in northern 4 in southern Chinese Taipei

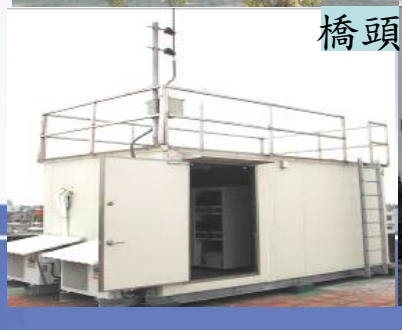
Particulate Matter Supersites

Photochemical assessment monitoring stations

- to monitor 56 types of VOCs (volatile organic compounds)
  - through photochemical reactions to produce secondary pollutant – Ozone
- 8 stations are running
- measures ozone precursors and analyzes their formation and special characteristics
- provides information on health risks due to exposure of pollutants

Photochemical Stations





International Background Air Quality Monitoring Station

- on top of Mountain Lulin (2862m)
- high precision equipment for monitoring trace gases, mercury and particulate matter
- for use in assessing trans-boundary air pollution and global climate change
- begin operation on April 2006

Lulin Background Monitoring Station

Carbon Dioxide Flux Monitoring Station

- set up on Mt. Cilan
- Flux - the rate at which CO2 gas comes out of the ground
- began monitoring in 2005
- help respond to potential impacts brought about by the Kyoto Protocol

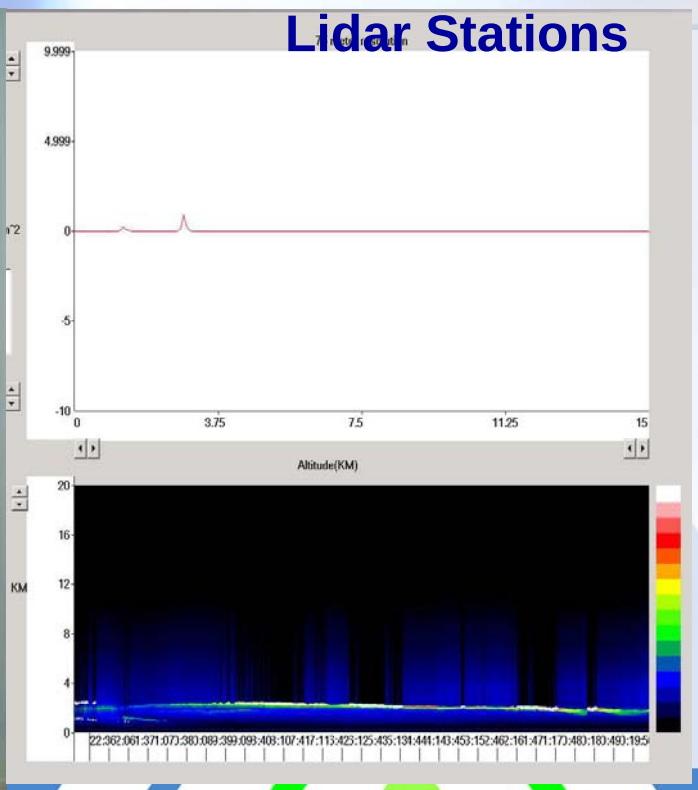
CO2 Flux Station

Meteorological Tower

Micropulse Lidar Observation Station

- monitor the vertical distribution of aerosols in the atmosphere
- LIDAR – Light Detection And Ranging
- quantitative analysis of air pollutants transported from dust storms
- helps understand the distribution of smoke and ash from open-air fires

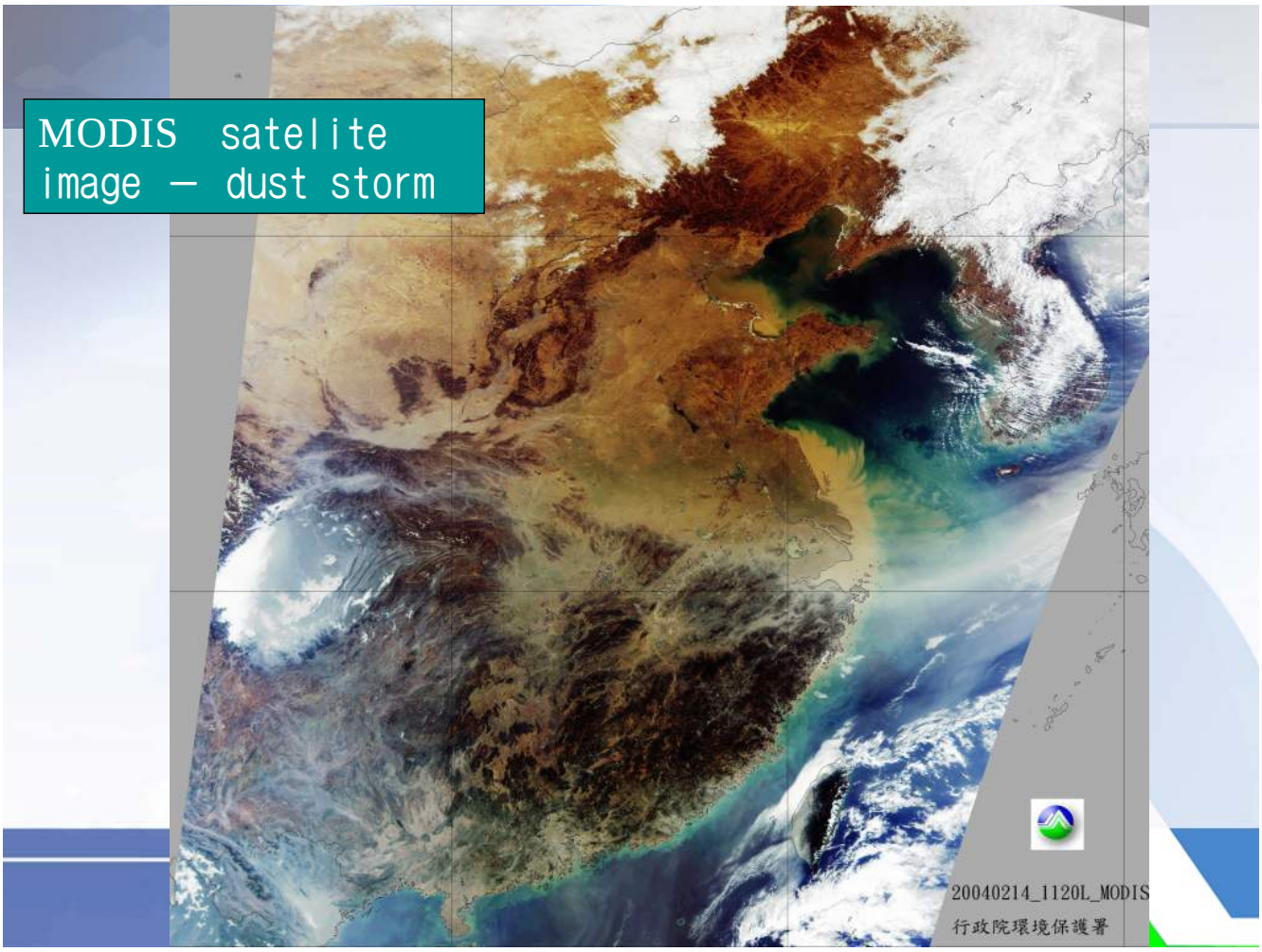
Micropulse Lidar Stations

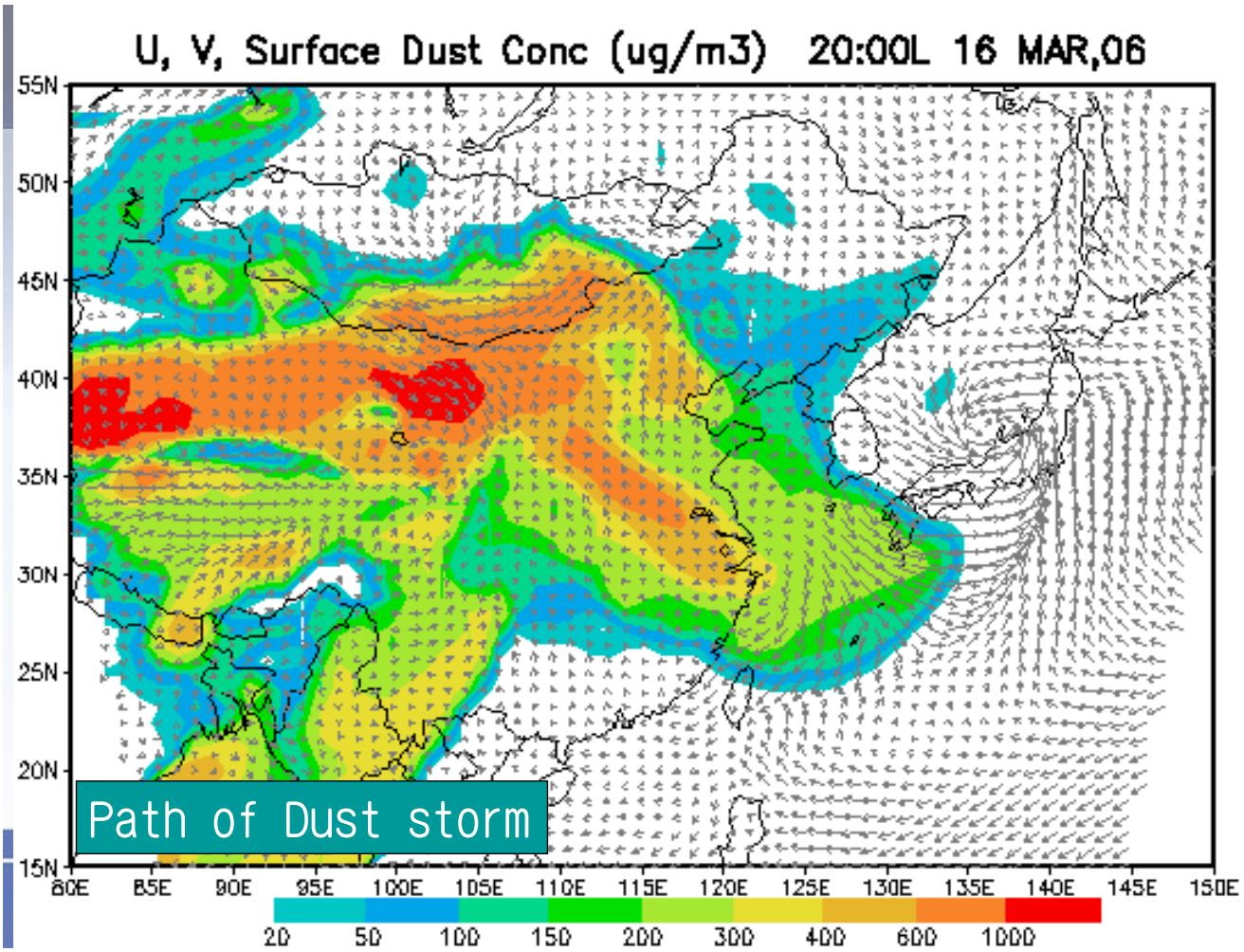


Meteorological Telemetry

- a temperature profiler, a wind profiler,
- a moderate resolution imaging spectroradiometer (MODIS)
- to analyze latent weather conditions related to air pollution and help analyze air pollution sources

Wind Profiler


MODIS satelite image – dust storm
20040214_1120L_MODIS
行政院環境保護署


U, V, Surface Dust Conc (ug/m3) 20:00L 16 MAR,06
55N
50N
45N
40N
35N
30N
25N
20N
15N
80E
85E
90E
95E
100E
105E
110E
115E
120E
125E
130E
135E
140E
145E
150E
20
50
100
150
200
300
400
600
1000
Path of Dust storm

Cooperative Plan

- MPLNET – Micro-Pulse Lidar NETwork
  - Monitoring the vertical distribution of aerosol
  - Cooperate with NASA
- AERONET – Aerosol RObotic NETwork
  - Monitoring the radiation by sunphotometer
  - Cooperate with NASA
- Atmospheric Brown Cloud – with UNEP
- Global mercury monitoring – with USEPA


LIDAR


Sunphotometer


Hg Monitor

Summary

- Chinese Taipei has developed diverse, advanced monitoring systems.
- We have many experiences about environmental monitoring in construction, integration, operation, data collection and procession.
- Exchanging monitoring technology and data with other economies is welcomed.


Thank you
for your attention