行政院及所屬各機關因公出國人員報告書

（出國類別：會議）

參加「2014 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： 王彥欽 設計師

派赴國家： 馬來西亞

出國日期： 103 年 8 月 26 日至 8 月 29 日

報告日期： 103 年 11 月 3 日

目　錄

參加「2013 亞太環境技術交換虛擬中心(APEC-VC)會議」出國報告

壹、 會議源起與目的

「亞太環境技術交換虛擬中心 APEC-VC」為 1995 年由 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，該計劃於 2012 年到期，惟 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 2012 年在 APEC 工業科技工作小組(IST-WG)會議中簡報計畫，獲得各成員之認可，將該計畫延長(自 2013 年至 2017 年)。

本次由馬來西亞國民大學(Universiti Kebangsaan Malaysia (UKM))主辦，2014 年亞太環境技術交換虛擬中心(APEC-VC)會議之目的，主要研討運用 APEC-VC 網站強化環境技術資訊交流之推動計畫，其中各亞太經濟成員國報告於推行環境技術與產品資訊之策略、方向與成果。

貳、 會議經過

一、8 月 27 日工作小組會議

2014 年亞太環境技術交換虛擬中心會議於 2014 年 8 月 27 日及 28 日在馬來西亞國民大學舉行，除我國外，尚有澳洲、智利、日本、馬來西亞、菲律賓、韓國等 7 個經濟體代表參加。我國由環保署監資處王彥欽設計師代表與會，議程與會議資料詳如附錄。

會議地點在馬來西亞國民大學 5 樓會議廳舉行，並由馬來西亞國民大學安排與會人員住宿於艾佛利普特拉賈亞飯店(Everly Hotel Putrajaya)。

本次工作小組會議於 8 月 27 日上午 10:00 各與會成員報到後，於 10:30 分開始，分以下議程進行:

(一)開幕會議

由馬來西亞副校長 Mazlin bin Mokhtar 代表地主國致歡迎詞，並說明各成員國致力於亞太虛擬中心的推廣。

(二)秘書處簡報

簡報內容展示目前已建置完成 APEC-VC Gateway 網站，包含下列項目：

1. 介紹有關 APEC-VC 成立的源由、目標、成員國及分享資料（研發技術、政策發展、能力建設）。
2. APEC-VC 里程碑，未來接續辦理的事項。
3. APEC-VC Gateway 網站設計理念、架構及網頁內容。

APEC-VC 網站於本年度 4 月完成建置，未來請各成員國持續精進內容，以推廣環境技術交流。

(三)各經濟體代表簡報

1. 澳洲

澳洲代表由澳洲國立大學氣候變遷研究中心(ANU Climate change institute) Lance Heath 博士進行簡報，對於未來 APEC-VC 的發展，將面對更多的挑戰，包括氣候的變遷影響農產品的生長、全球人口不斷的成長造成食物的短缺的問題等，這些種種的問題須要運用環境技術來舒緩或解決。

2. 智利

任教於智利大學的 Lionel Gil 博士於簡報中介紹了智利的經濟概況，目前智利與全球 190 個國家進行經濟往來，擁有 4.3 億人口的人口，估計相當於世界 GDP 的 85.7%，商業出口佔貿易協定的國家 93%。從聯合國計劃發展的最新報告，智利人類發展指數為 0.822，已成為拉丁美洲的首位，並在世界排名為第 41 位。的（世界排名第 1 名是挪威 0.944）。

智利未來的工作目標：（1）促進環境科技資訊在 APEC 經濟體間交流(2)促進智利國內產業參與的機會 (3)交換技術和環保產業的產品訊息(4)提供與環境相關之最新的訊息：污染、技

術、法律、法規、政策、措施、項目(5)研擬保護環境措施

在 APEC-VC 上的努力，獲得智利相關產業機構的技術支持，並連結智利和韓國超過 656 企業間的聯繫。

3. 我國

我國由行政院環境保護署王彥欽設計師說明推動電腦機房節能改善的成效與經驗分享。

主要介紹傳統電腦機房所面臨的問題，例如空調設備冷卻效率差、空間使用率低、電腦機房內溫度分佈不均常造成熱點效應。

對於上述問題提出具體改善的策略方法：(1) 建立「冷熱通道分離」減少機房內混風混流，呈現溫度平穩狀態(2)採用「機櫃式空調機 」縮短冷空氣流動路徑，提升空調效率(3)引進高效率機櫃式模組不斷電系統(UPS)，減少能源轉換時耗損。

最後展現改善後的成效：(1)機房總用電量節省約一半(2)機房使用空間節省約 2/3。

4. 菲律賓

服務於菲律賓政府工業技術發展局科學與技術部的菲律賓代表 Carmel C. Gacho 博士，介紹菲律賓 Industrial Technology Development Institute 組織架構，該單位致力於如下貢獻：(1)進行應用研究和開發，以開發新技術及創新工業製造、礦產加工、環境和能源領域(2)研發改善環境新技術，並將研究成果，轉移給最終用戶或其他政府機構，及提供技術諮詢及顧問服務。

簡報中提及該 ITDI 組織多項研發成就，例如：藉由二氧化鈦光催化水溶性柴油（WSDFF）分解、利用靜電醋酸纖維素/殼聚醣納米纖維膜去除廢水中的重金屬、危險廢物管理手冊的開發、高能效反應器和鍋爐系統的設計等。

5. 馬來西亞

馬來西亞代表 Mazlin Bin Mokhtar 博士介紹了馬來西亞的國家綠色科技政策，包含綠色科技定義、最大限度地減少環境

退化、有零（低）的溫室氣體（GHG）的排放、節約能源使用和自然資源、促進再生資源利用等)。

展示運用綠色科技相關成果：(1)打造出布城(Putrajaya)及賽城(Cyberjaya)綠色城市，並成立綠色技術和氣候變化委員會（MTHPI），負責協調立法、政策計劃、宣傳活動等(2) 馬來西亞全國綠色計劃 2030 詳細說明了該國實施綠色技術政策，將推動改變成綠色經濟，融合經濟增長與保護環境，持續性的戰略方向(3)政府部門購買選定的綠色產品和服務的措施，促成民間企業的參與(4)運用電動交通工具，提高公眾利用率，採用清潔燃料和新研發汽車製造技術，使馬來西亞成為一個高科技及具環保生態系統的綠色電動汽車供應鏈製造中心。

6. 日本

首先說明過去 1 年(2013)，日本致力於 APEC-VC 完成的工作事項，例如與韓國 VC 合作，透過各種活動促進環境技術的交流，並將相關過程，編譯成簡易文件保存。

過去 1 年工作執行重點(1)向日本政府部門報告，首爾研討會的成果及 VC 日本的未來計劃(2)招攬更多企業或公司參與 VC(3) 完成總結 2013 APEC-VC 白皮書。

(四)討論與閉幕

會議最後一個議程為討論運用 APEC-VC 網站強化環境技術資訊交流之推動計畫，由澳洲國立大學氣候變遷研究中心(ANU Australian National University) Lance Heath 博士擔任主並對各與會經濟體代表討論的結果總結。

經本次會議討論結果，主要歸納如下：

1. 本次會議主題為研討運用 APEC-VC 網站強化環境技術資訊交流之推動，亦即透過本網站提供環境技術與產品資訊交換網站平台。
2. APEC-VC 網站於本年度 4 月完成建置，未來各成員國將持續精進內容，以推廣環境技術交流。

3. 透過聚焦於各經濟體與中小企業的環保工業發展，以增進綠色經濟規模。

4. APEC-VC 未來將規劃參與東盟經濟共同體(ASEAN Economic Community)，使更多國家重視綠色經濟發展。

5. 各成員國代表認為，為使工業界更重視環境保護技術研發，鼓勵在學術界多開設與環境保護技術相關的課程，進而推展至工業界。

二、8 月 28 日參訪馬來西亞之城市規劃行政部門及鑽石外觀綠色建築

8 月 28 日上午是全體與會人員由飯店驅車前往馬來西亞城市規劃行政部門，該部門是馬來西亞政府城市開發審查單位，抵達辦公室後，聽取簡報介紹太子城之湖泊及濕地管理機制及成效。

馬來西亞政府在湖泊及濕地管理機制上，除了訂定明確的規範外，亦舉辦多次公眾參與的相關活動（例如：湖泊泛舟、潮間帶體驗營等），經由活動加深民眾對環境保護的重視。

下午參訪鑽石外觀綠色建築，該建築為馬來西亞能源部總部(ST)，大樓鑽石外型除美觀外，依白天日照測量後，設計傾斜 25 度外牆，正可遮擋陽光照入室內，以減少使用冷氣，該大樓獲得馬來西亞及新加坡兩地，綠色建築白金級認證。其他節能措施包括如下(1)以自動感應百葉窗調節太陽光，沒有人工照明的需要，鑽石造形行成切風貫入採光照(2)地下停車場對流無須抽風設備(3)特殊設計冷水裝置以水貫穿管嵌在混凝土之間在夜間降溫，早晨整個建築結構約 21°C(4)太陽板大幅取代電能，另外在屋頂設計儲水巢作為灌溉植物及大樓馬桶用水。

參、心得與建議

一、 各與會成員國普遍認為後續應充實環境技術交換虛擬中心閘道網站內容，以促進環境技術交流，未來本署將配合蒐集國

內環境相關資訊，並提供或連結至該網站。

二、 主辦單位（韓國）預計 104 年 3 月間舉辦競賽活動，開放由學生、學者及業界等團體，提出相關環境技術交流與新思維，以促進 APEC-VC 網站推廣，屆時本署將配合網站宣傳。

三、 持續促進雙邊或多邊交流亦為本次工作會議主軸，韓國秘書處主動表示，下次工作會議將於該國舉行，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。

圖 1 會議現場

圖 3 主辦國贈送紀念品給各經濟體代表

圖 3 環保署同仁出席大會全體人員合影

圖 4 參訪馬來西亞之城市規劃行政部門

圖 5 參訪馬來西亞鑽石外觀之綠色建築合影

附錄 會議資料

UNIVERSITI KEBANGSAAN MALAYSIA
The National University of Malaysia

PROF. DATO' DR. MAZLIN BIN MOKHTAR
Deputy Vice Chancellor (Research and Innovation)

UKM(S) 3.2/11/2
2 July 2014

Yen-Chin Wang
Environmental Protection Administration, R.O.C.
Department of Environmental Monitoring and Information Management,
Taiwan

Dear Yen-Chin Wang

INVITATION TO APEC VIRTUAL CENTRE (APEC-VC) MALAYSIA WORKSHOP 2014

It has been 19 years since APEC-VC for Environmental Technology Exchange Project was approved as one of the official APEC projects at the APEC conference in Osaka, 1995. 12 member economies in the APEC region opened its website called "Virtual Center", creating a global network regarding the information on any environmental field and energy-saving across the Pacific Rim.

In 2014, the APEC Virtual Centre Workshop will be hosted by APEC-VC Malaysia with the theme of "*A Plan to Strengthen Environmental Technology Information Exchange Using APEC-VC Gateway Website in Asia-Pacific Region*" which to be held in The Everly Hotel, Putrajaya, Malaysia, 27-28 of August 2014.

We would like to cordially invite you to the workshop as well as to strengthen cooperatives for operating APEC-VC gateway website efficiently. Here attached, the programme tentative for your reference. I appreciate your cooperation in advance.

Sincerely yours,

PROF. DATO' DR. MAZLIN BIN MOKHTAR
Deputy Vice Chancellor,
Research and Innovation Affairs
Universiti Kebangsaan Malaysia

Agenda for 2014 APEC-VC Malaysia Workshop

Putrajaya, 27-28 August 2014

Date	Time	Agenda Item
August 26	-	Participant Arriving to Malaysia
August 27	10:00-10:30	Registration
		Session 1: Opening ceremony
	10:30-10:40	Speech by Representative from APEC-VC Secretariat
		Speech by Representative of APEC-VC Malaysia (Country Host)
	10:40-10:45	Group photo
	10:45-11:00	Short break
	11:00-12.00	**Session 2: The Progress of APEC-VC Gateway Website**
		Presentation from APEC-VC Korea
	12:00-14:00	Lunch Break
		Session 3: Report of activities by each economy
		Chair by Dr. Lance Heath
	14:00-14:10	- VC Australia
	14:10-14:20	- VC Chile
	14:20-14:30	- VC Taiwan
	14:30-14:40	- VC Thailand
	14:40-15:00	Coffee Break
	15:00-15:10	- VC Japan
	15:10-15:20	- VC Malaysia
	15:20-15:30	- VC Philippines
	15:30-15:40	- VC Vietnam
	15:40-16:40	**Session 4: The Way Forward**
		Chair by Dr. Lance Heath
	16:40-17:00	Chair's summary
	17:15-17:30	Closing of workshop
	-	Free time
August 28	10:00-12:00	Visiting Putrajaya Corporation (Lake and Wetland Management)
	12:00-14:00	Lunch Break
	14:00-16:00	Visiting Malaysia Green Tech (Green Building)
	16:00-19:00	City Tour to Kuala Lumpur City Centre (KLCC)
	19:00-22:30	Dinner (Saloma Bistro, Kuala Lumpur)
August 29	-	Leaving Malaysia

APEC-VC MALAYSIA WORKSHOP 2014

"A Plan to Strengthen Environmental Technology Information Exchange Using APEC-VC Gateway Website in Asia-Pacific Region"

27 August 2014
VC Korea

KEITI 한국환경산업기술원
Korea Environmental Industry & Technology Institute

CONTENTS

A Plan to Strengthen Environmental Technology Information Exchange Using APEC-VC Gateway Website in Asia-Pacific Region

I. Background

1. Background

1. Introduction

- Project title : Development of APEC-VC single entry point – PPSTI 03/2013
- Duration May 2013 ~ November 2014

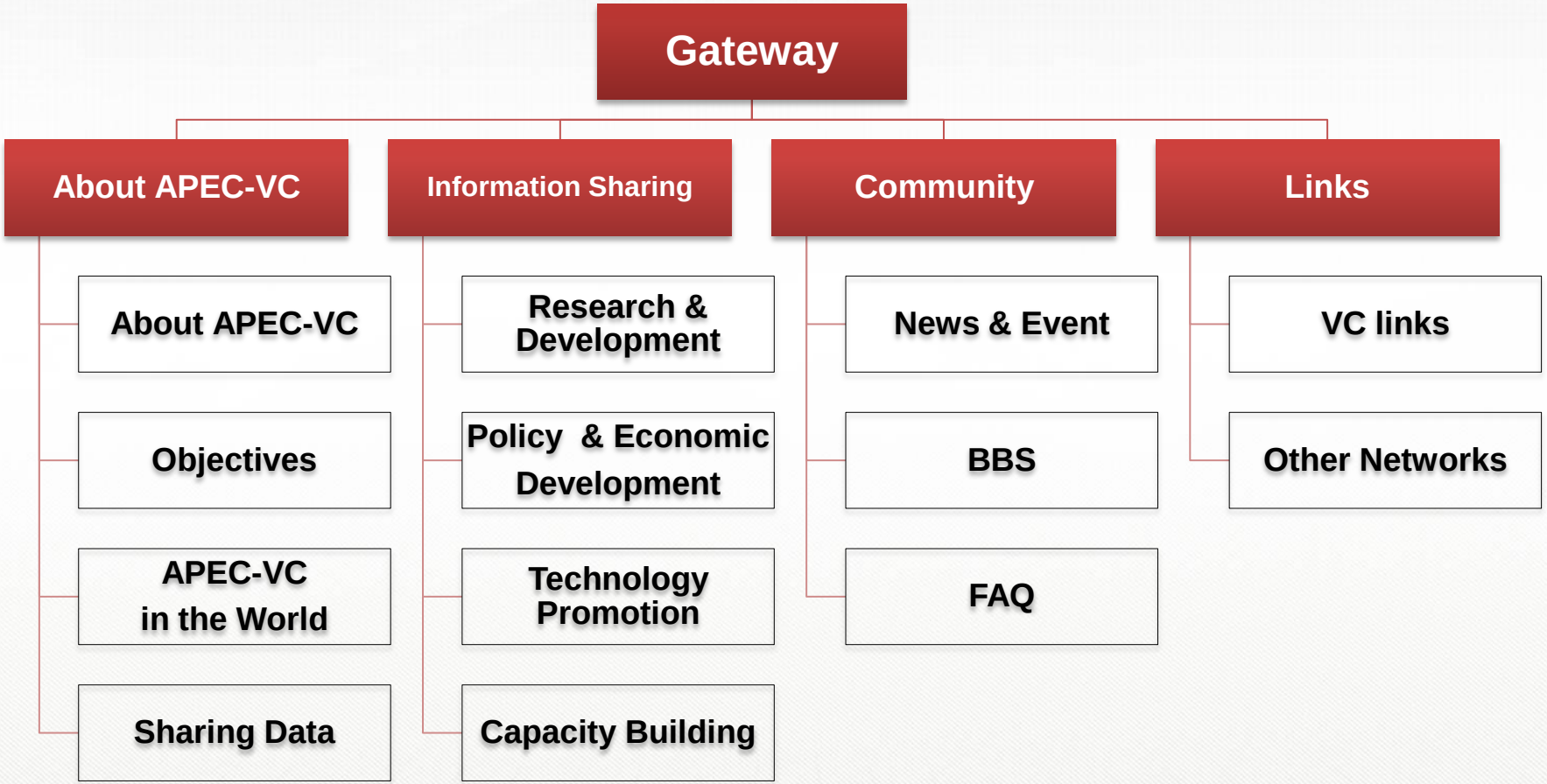
2. Goal

- Exchange Information between members
- Alleviate gap between members
- Link Consumer and Product
- Promote APEC-VC activities

2. Description of APEC-VC Gateway

- **Title : APEC-VC Gateway**
- **URL : www.apec-vc.com**

3. Menu Architecture of Gateway



II. Progress

Milestone (2013~2014)

CN Submitted
PPSTI 01 2013

APEC-VC
Gateway website
Developed

March — 1st APEC-PPSTI Meeting

April

June — APEC-VC Seoul Workshop

January

August — APEC-VC Malaysia Workshop

September — 4th APEC-PPSTI Meeting

December — Project Completion

2013

2014

1. APEC-VC Gateway : Design & Layout

Main

Top Menu

Sub Page

2. Selection of Top Menu & Sub Page Design

Top Menu

Sub Page

3. APEC-VC Gateway : Main Function > Research & Development

Information Sharing

Information Sharing

Research & Development

: R&D Database

Policy and Economic Development

: Laws & Regulations

Technology Promotion

: Eco goods, Green Technology

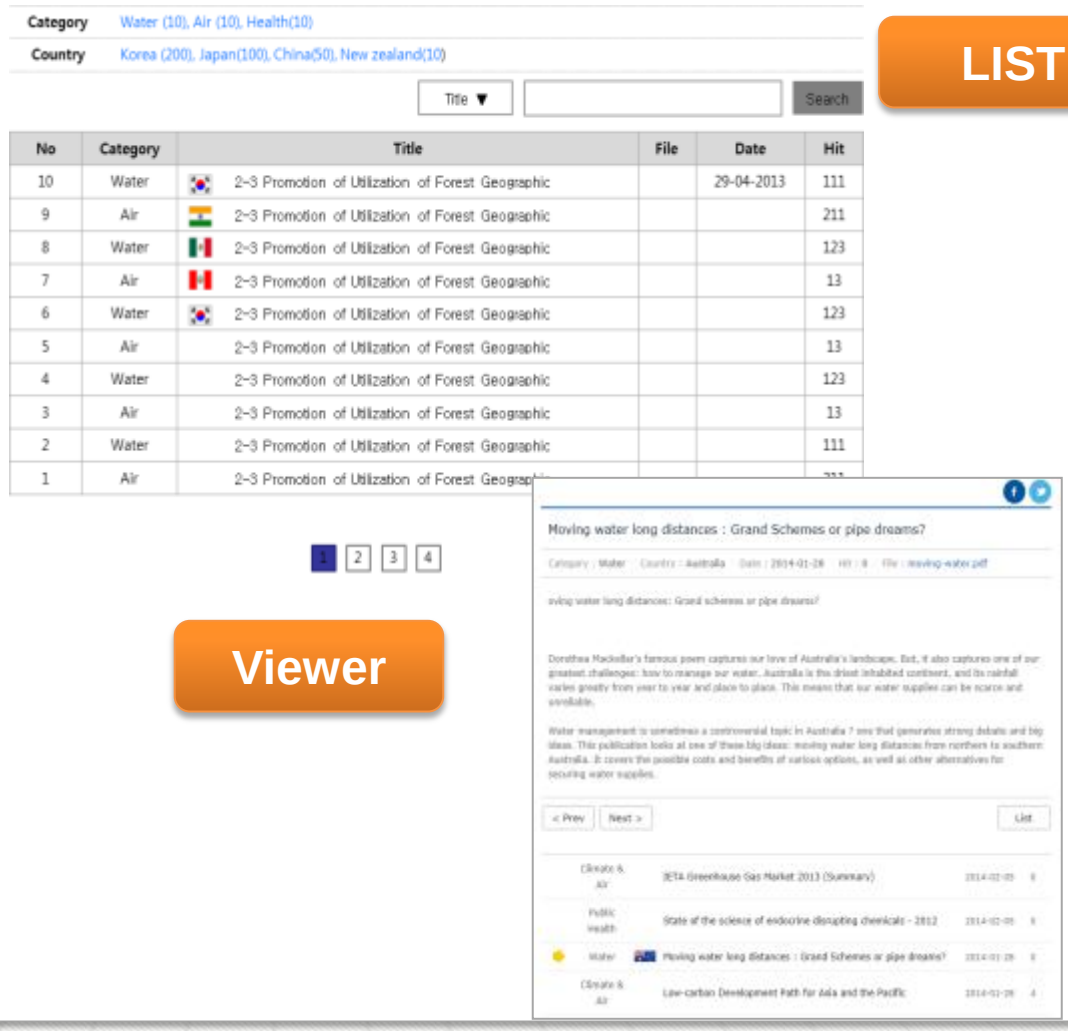
Capacity Building

: Projects and Initiatives,
Training Programs, Seminars

Research & Development

LIST

Viewer



4. APEC-VC Gateway : Main Function > Technology Promotion

Information Sharing

Information Sharing

Research & Development

: R&D Database

Technology Promotion

: Eco goods, Green Technology

Policy and Economic Development

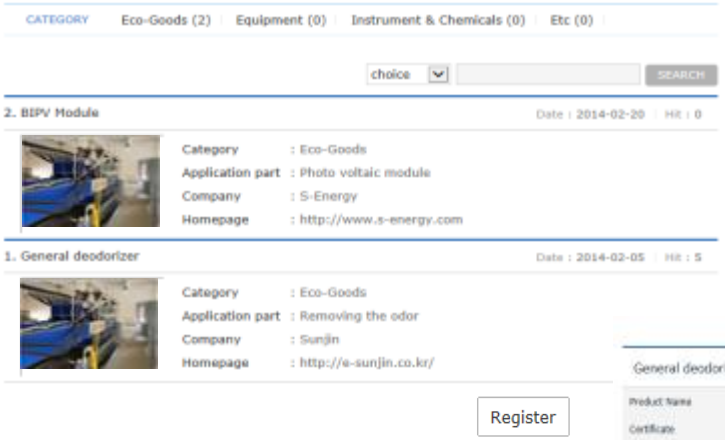
: Laws & Regulations

Capacity Building

: Projects and Initiatives,
Training Programs, Seminars

Technology & Promotion

LIST



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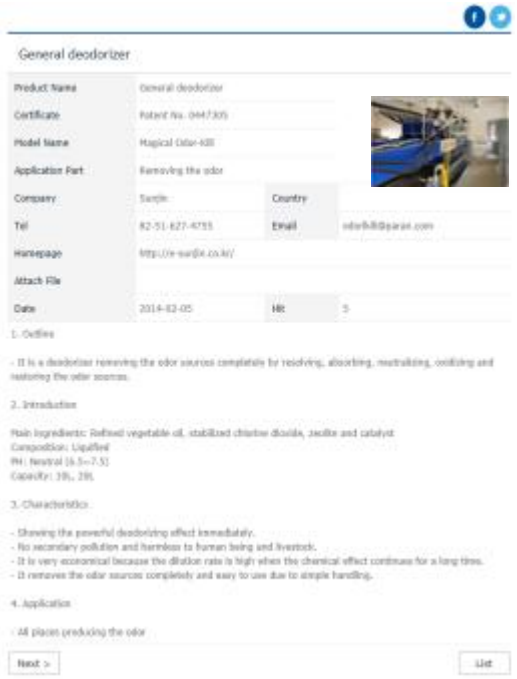


5. APEC-VC Gateway : Main Function > Policy and Economic Development

Information Sharing

Information Sharing

Research & Development

: R&D Database

Technology Promotion

: Eco goods, Green Technology

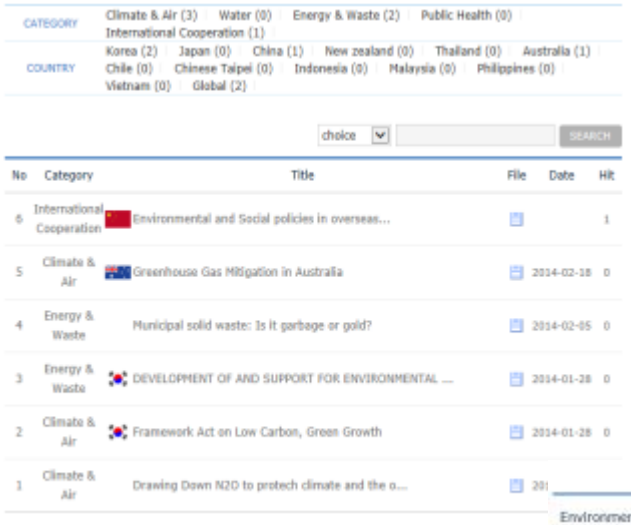
Policy and Economic Development

: Laws & Regulations

Capacity Building

: Projects and Initiatives, Training Programs, Seminars

Policy and Economic Development



LIST

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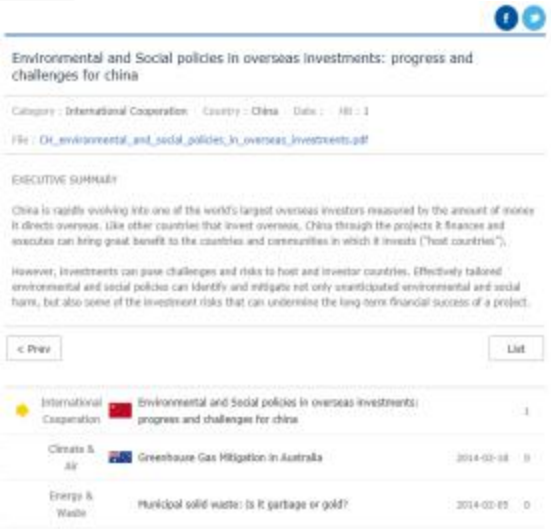


6. APEC-VC Gateway : Main Function > Capacity Building

Information Sharing

Information Sharing

Research & Development

: R&D Database

Technology Promotion

: Eco goods, Green Technology

Policy and Economic Development

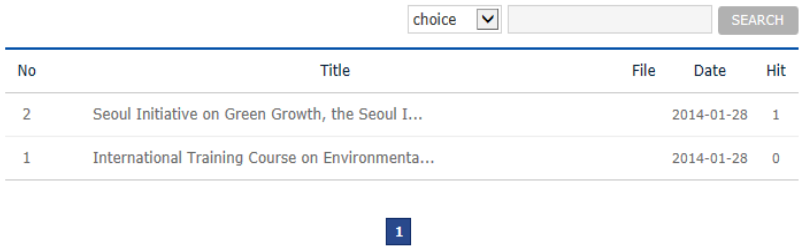
: Laws & Regulations

Capacity Building

: Projects and Initiatives, Training Programs, Seminars

Capacity Building

LIST



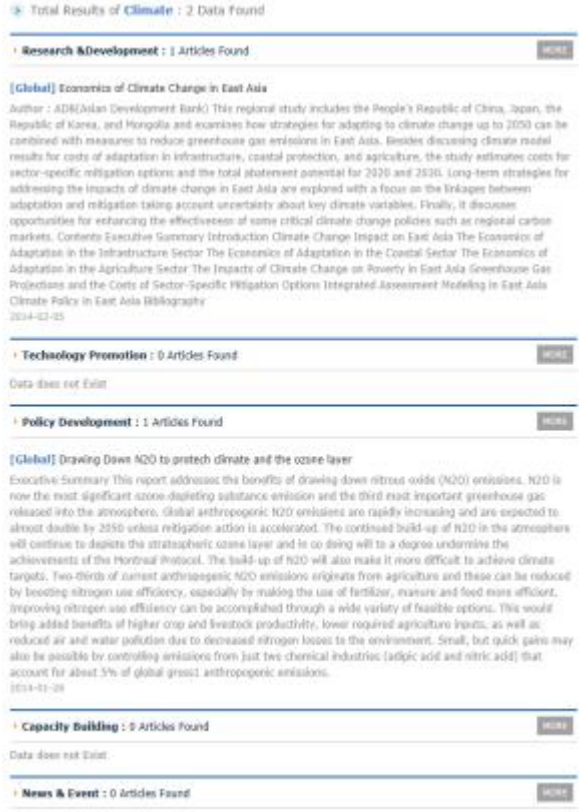
Viewer

7. APEC-VC Gateway : Main Function > News & Event / Search

News & Event

-
-
-

Search



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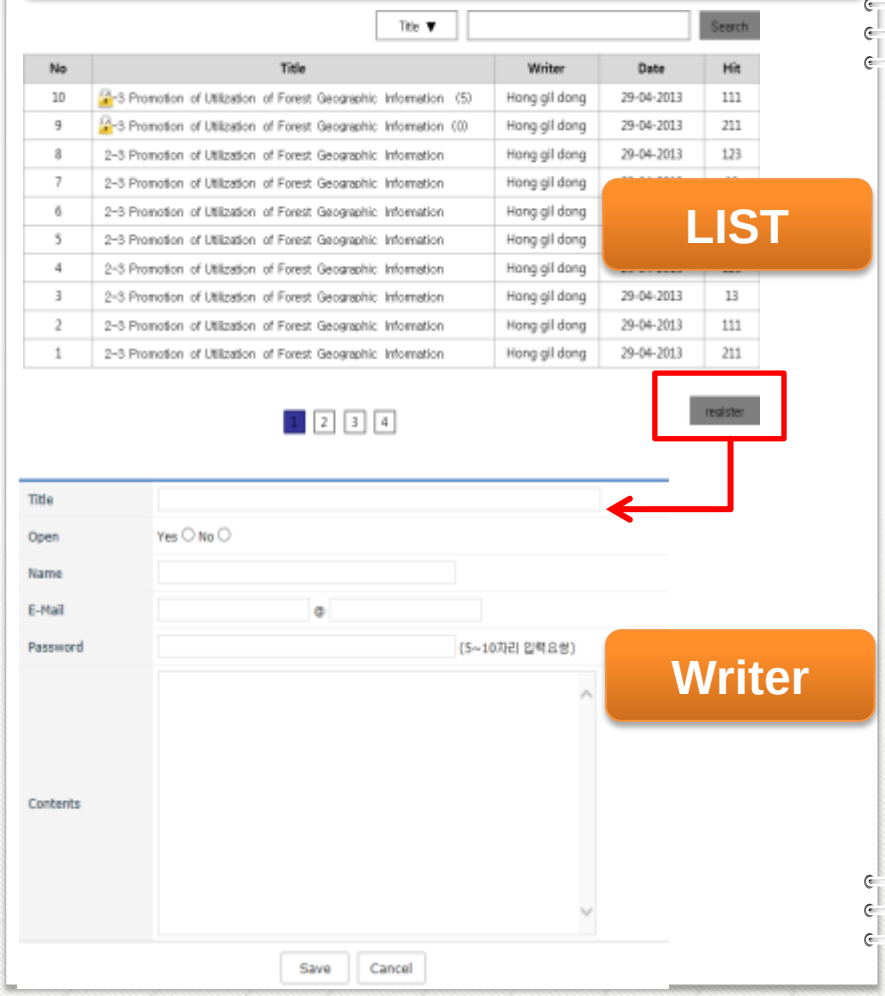
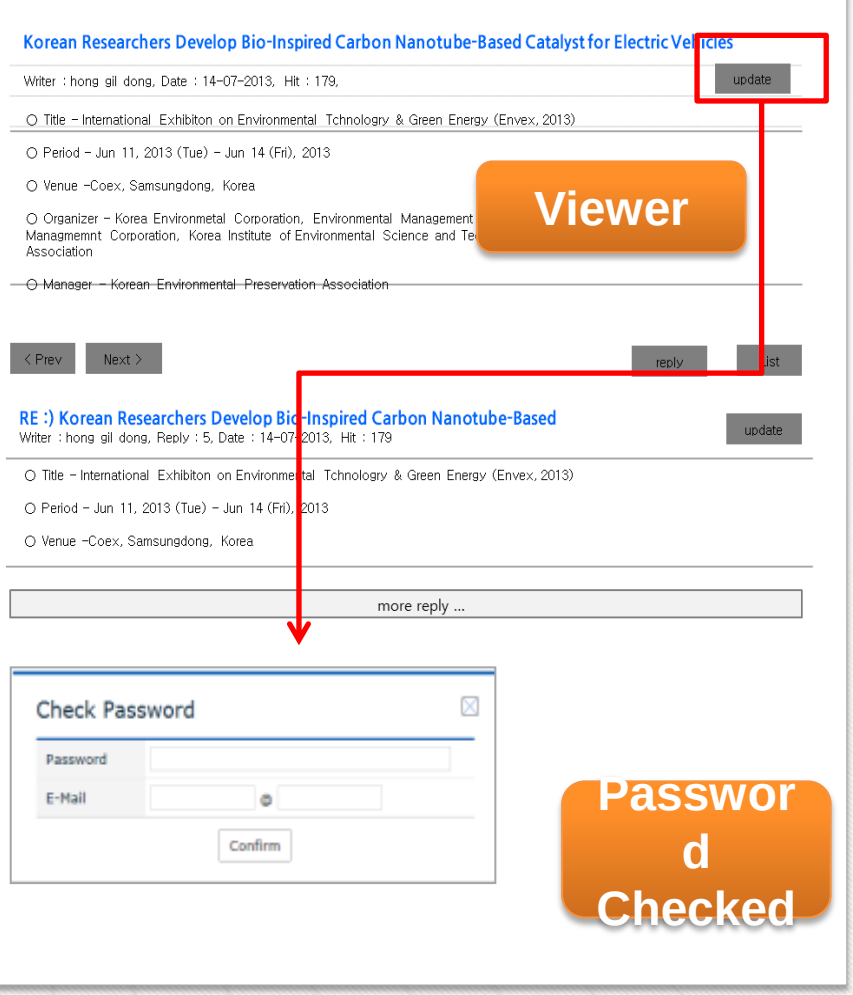
8. APEC-VC Gateway : Community Function > BBS

BBS List & Register

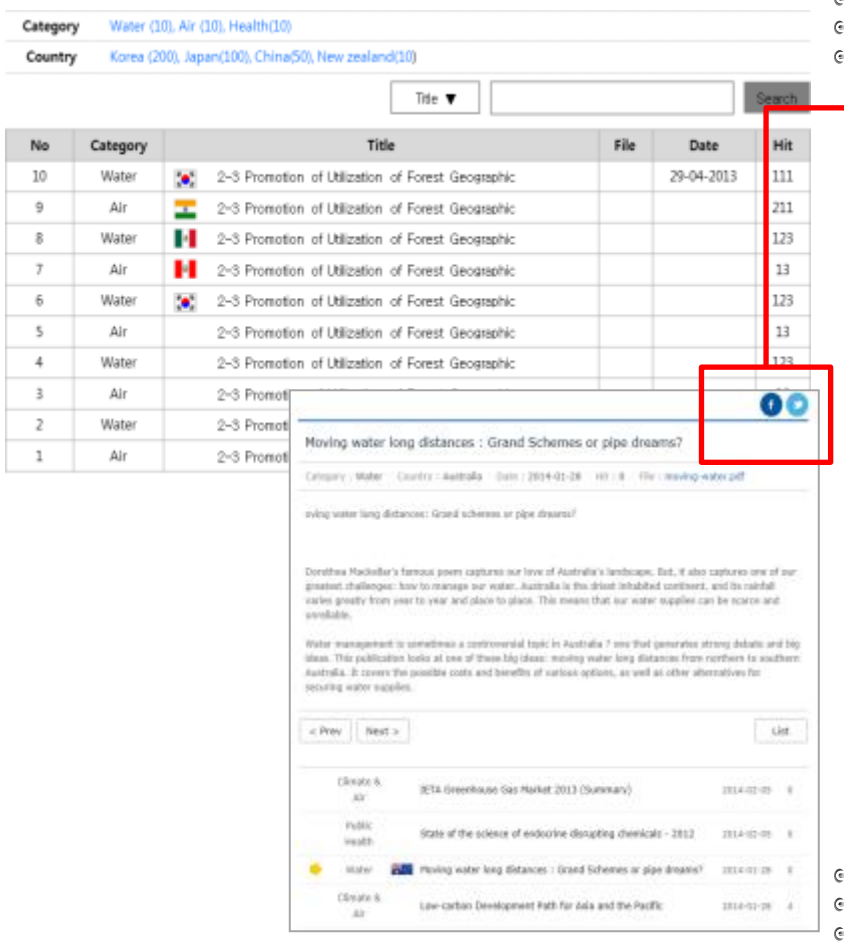


BBS Viewer / Update(P/W)

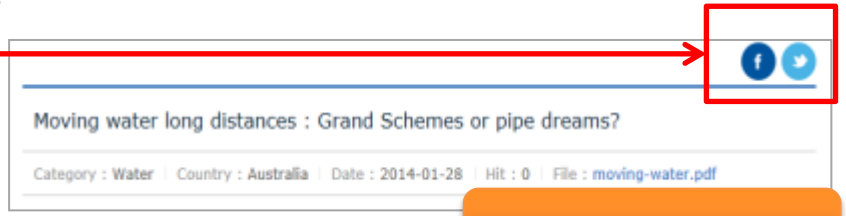


8. APEC-VC Gateway : Community Function > SNS Function

Revitalization of SNS Function



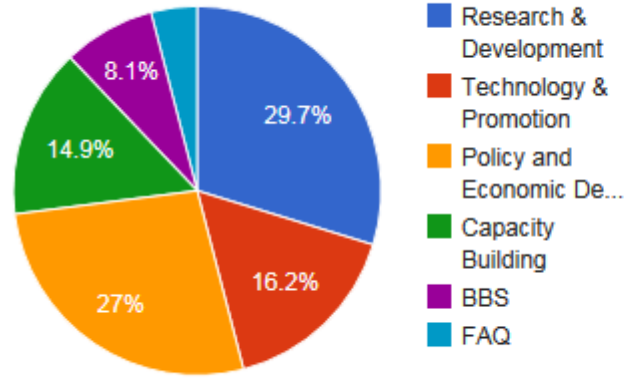
Link of SNS : Facebook & Twitter

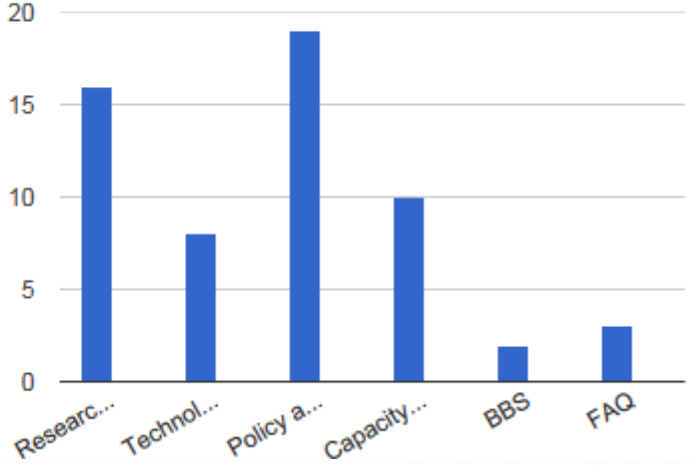


SNS Function

9. APEC-VC Gateway : Data stats

- **Problems…**





Menu	Data
Information Sharing	
-Research& Development	16
-Technology Promotion	8
-Policy Development	19
-Capacity Building	10

III. Follow up

Project title	**International idea competition for environmental technology exchange**
Project period	January ~ December 2015
Objectives	Bridge the divide between developing and developed economies as well as to promote the sustainable growth of APEC

To boost the exchange of information and to enhance efficiency for the gateway website

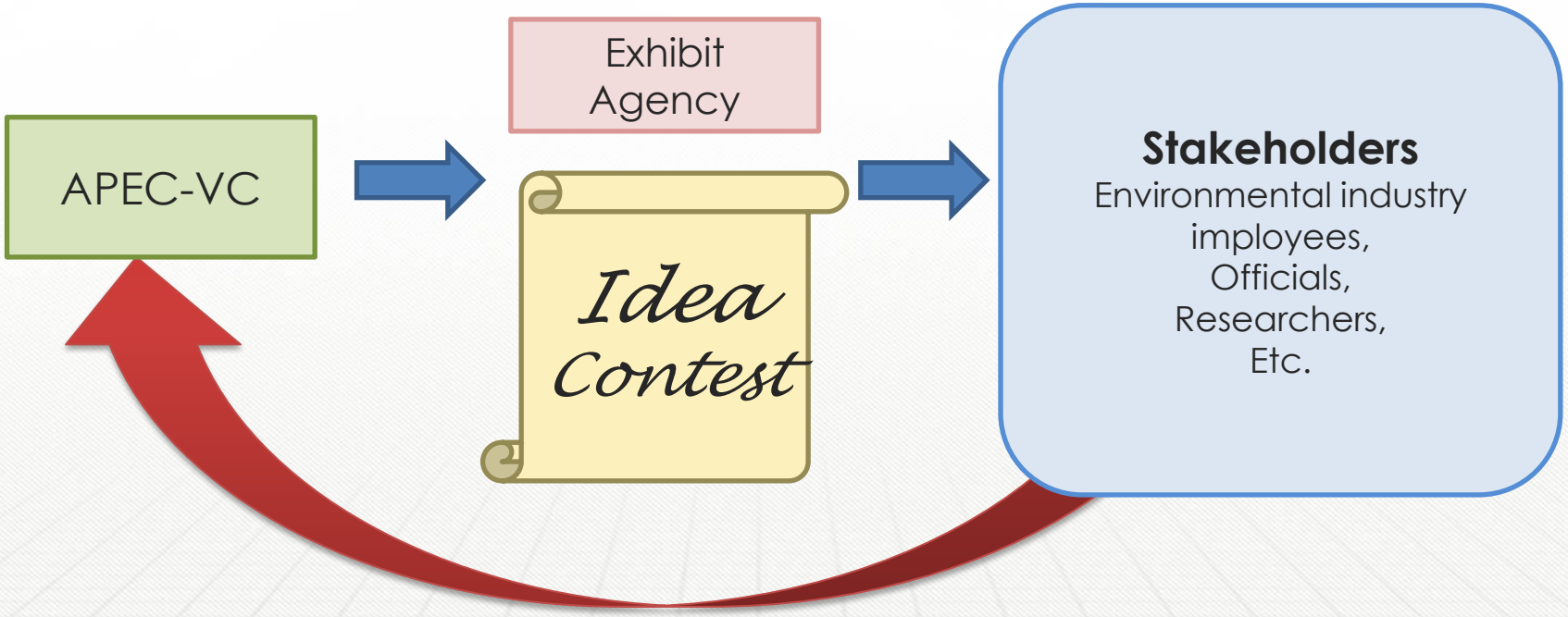
International idea competition for environmental technology exchange

a competition enabling us to receive ideas from these holders about the type of information that is required, the utilization of said information, as well as P.R. di

Methodology

<An international idea contest>

- **Recruit ideas to boost information exchange and enhance efficiency for the gateway website**



IV. Workplan

- ***Workplan:*** **Project timelines, dates of key activities and deliverable outputs.**

Time	Activities	Milestone/Output
Jan – Mar	Contract with a contest exhibit agency	RFP, Proposal, Action Plan, Contract
Mar – May	Hold a contest promoting ideas	Entries
Jun	Preparation of Workshop	Selection of Participants
Jun or Jul	Workshop & Awards ceremony	2015 Workshop (Seoul)
Jul – Oct	Economy Assignment, Monitoring, and Progress Report	Submission of Progress Report
Nov	Finalizing the Final Report	Submission of Final Report
Dec	Publication & Distribution of the project outcome	Result analysis

Thank you

감사합니다

CHILEAN NODE, OF THE APEC VIRTUAL CENTER FOR ENVIRONMENTAL AND TECHNOLOGY EXCHANGE

Dr. Lionel Gil Hormazabal
Dra. Marta Adonis Parraguez
MsC. José P. Díaz Garrote

Faculty of Medicine, University of Chile

Malaysia Workshop
27-28 of August 2014

INDEX

GENERAL INFORMATION CHILE - APEC

- APEC 21 economies
- Chile signed agreement 1994
- APEC 63 % of total world population

- Pacific economies represent nearly 58% of global GDP in 2013
- 63% of chilean exports goes to APEC economies
- 55% of imports are from APEC economies
- Free Trade Agreements (FTA) with 15 APEC members
- Main commercial APEC chilean partners: China, USA, Japan, South Korea, Mexico and Peru

Sources: SOFOFA (Federation of Chilean Industry) and Ministery of Economy

MAKING BUSSINES WITH THE WORLD

- Chile make bussines with more of 190 countries, with an estimated population of 4.3 billions inhabitants, equivalent to 85.7% of the world GDP (2012)

- 93% of commercial exports of Chile are with countries with trade agreements (2012)

CHILE MACROECONOMIC INFORMATION

	Population Estimated (Million)[1]	Gross Domestic Product (GDP) Per capita (Thousand U.S. Dollar)	Gross Domestic Product (GDP) Country (Billons U.S. Dollar)	Unemployment rate %
2008	16,4	14,9	164,3	7,8
2009	16,6	14,7	170,7	9,6
2010	16,7	15,4	160,8	8,3
2011	16,8	17,4	203,4	7,2
2012	17,5*	17,9	268,0	6,4
2013	17,7*	19,8*	277,2	6,0

Sources:

Statistics INE 2013, Chile evolution of economical activity. Chile Central Bank 2014 Macroeconomic indicators.

** Projection, * * The highest in L.A.*

CHILE MACROECONOMIC INFORMATION

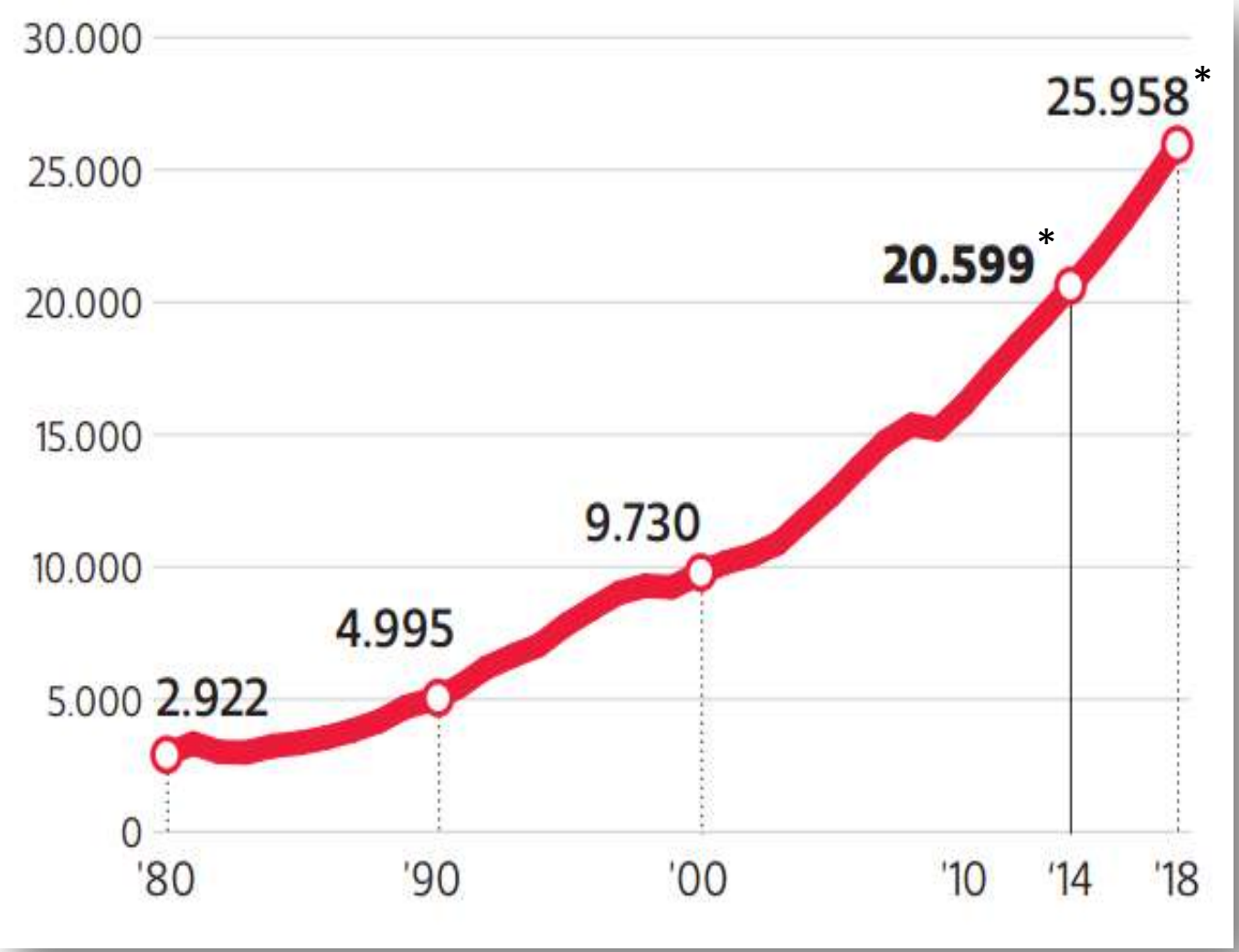
	EXPORT	IMPORT (Billons U.S. Dollar)	COMM. BALANCE	INFLATION %
2008	66,46	57,61	8,85	7,1
2009	53,74	39,75	13,99	-1,4
2010	64,28	64,29	-0,01	3,0
2011	81,71	70,92	10,79	4.4
2012	78,81	79,27	-0,46	1,4
2013	76,68	74,57	2,11	3,0

Sources:

Statistics INE 2013, Chile evolution of economical activity. Chile Central Bank 2014 Macroeconomic indicators.

** Projection, * * The highest in L.A.*

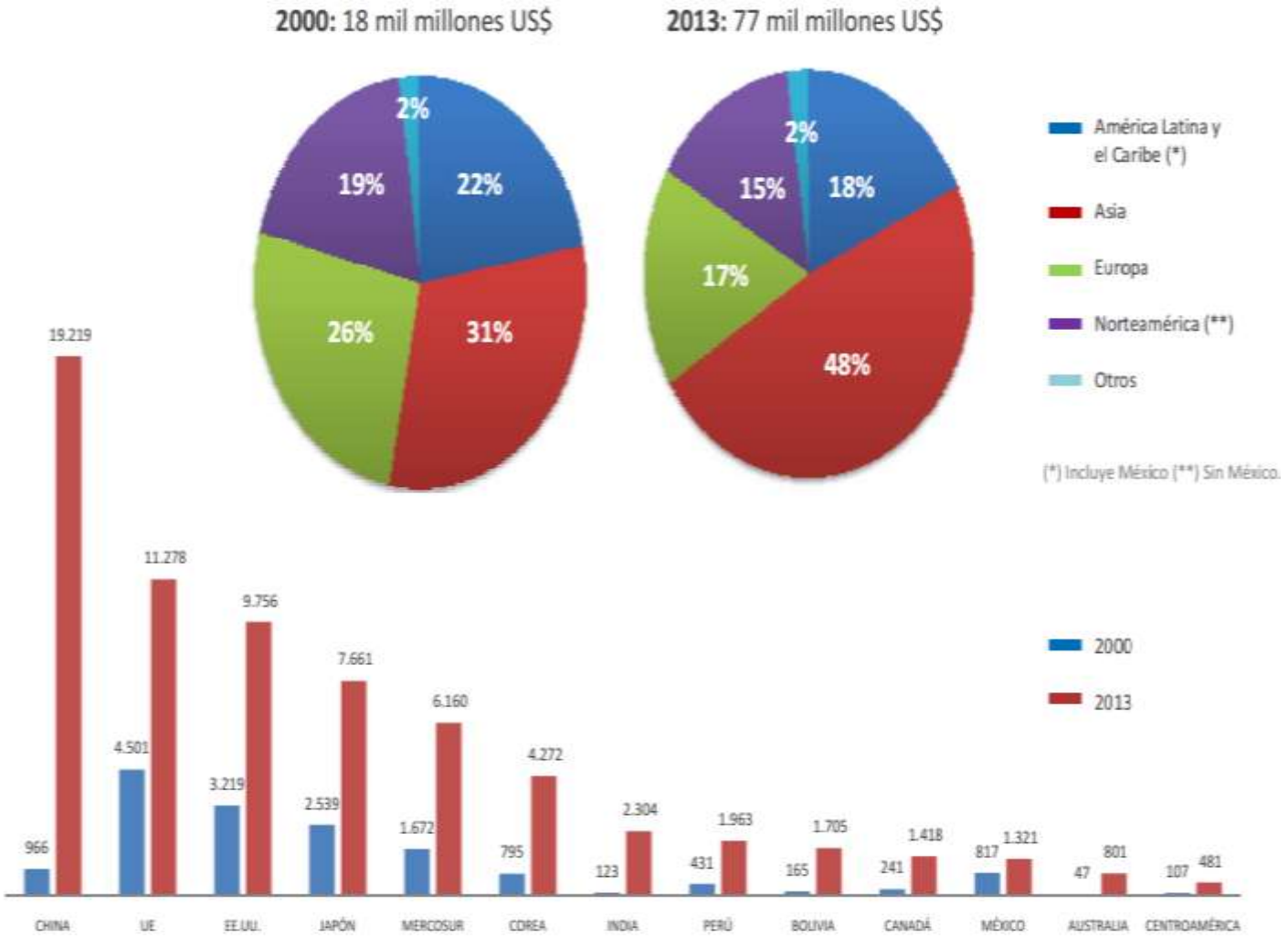
GDP PER CAPITA EVOLUTION CHILE (US$)



* Projection

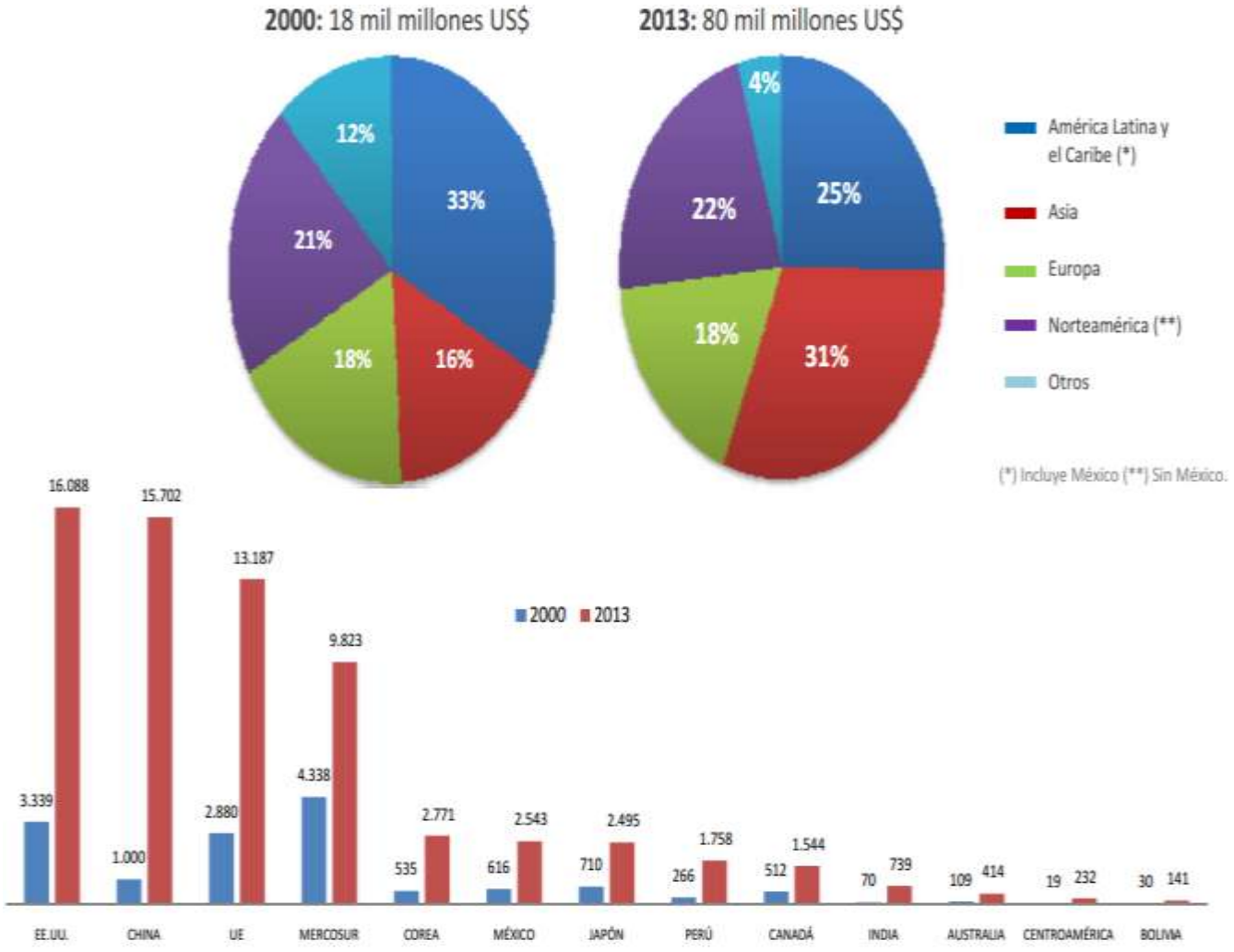
Sources: FMI april 2014

TRADE FIGURES MARKET TRENDS
EXPORTS BY DESTINATION



Sources: Central Bank Chile and DIRECON 2014

TRADE FIGURES MARKET TRENDS
IMPORTS BY DESTINATION



Sources: Central Bank Chile and DIRECON 2014

CHILE FIRST PLACE IN LATIN AMERICA IN HUMAN DEVELOPMENT INDEX

Accordingly to a recent report from the United Nations Program for Development , Chile reached the first place in Latin-America, in the Human Development Index (0.822) and the 41 place at World level. The. First place at the world level was Norway with 0.944.

The same report establish that Chile also is leader in Latin America in GDP per capita with US $20.804. Whereas the average for the region was US $13.767.

Regarding the life expectance this was 78.8 years compared with 74.9 years average for the Region

Source ; PNUD, El Mercurio August 2014

MAIN EXPORTS FROM CHILE

1st global supplier of **Grapes**

1st global supplier of **Frozen salmon**

4th global supplier of **Wines**

1st global supplier of **Blueberries**

2nd global supplier of **Fishmeal**

2nd global supplier of **Trout**

CHILE IS THE 1ST COPPER PRODUCER IN THE WORLD

http://apec-vcchile.med.uchile.cl/index.html

OBJECTIVES

http://apec-vcchile.med.uchile.cl

- **FACILITATE THE EXCHANGE OF ENVIRONMENTAL TECHNOLOGY INFORMATION WITHIN APEC ECONOMIES.**
- **PROMOTE BUSINESS OPPORTUNITIES**
- **EXCHANGE TECHNOLOGY AND PRODUCT INFORMATION OF THE CHILEAN ENVIRONMENTAL INDUSTRY .**
- **PROVIDE THE LATEST UPDATED CHILEAN INFORMATION ABOUT ENVIRONMENT: POLLUTION, TECHNOLOGIES, LAWS, REGULATIONS, POLICIES, MEASURES AND PROJECTS.**
- **CONTRIBUTE TO ENVIRONMENTAL PROTECTION IN CHILE.**

36 doctorados
118 programas de magister

Entre las 500 mejores universidades del mundo

14 facultades y 4 institutos

U

Convenios internacionales en los 5 continentes

Centros y laboratorios a lo largo de todo Chile

169 Premios Nacionales

435 proyectos de investigación básica actualmente en ejecución

20 Presidentes de Chile ex alumnos

587.111 m² de terreno construido

Fundada en 1842, es la Universidad más antigua del país

10 ramas deportivas federadas

38 mil alumnos de pregrado y postgrado

3 millones de volúmenes en 48 bibliotecas

APEC-VC CHILE
ACTIVITIES JULY 2013- JULY 2014

•We have changed our web page from CONICYT to the University of Chile , Faculty of Medicine. Technical support from the U. of Chile.

•Contacts with entrepreneurs organizations: Linked to the Chile-Korea Chamber of Commerce. Connection and information with more than 656 Chilean and Korean companies.

APEC-VC CHILE
ACTIVITIES JULY 2013- JULY 2014

•Agreement with COESAM an ecological Chilean company doing business in Korea, Malaysia, China and Japan in the field of Dermatology and Cosmetics.

•Information about Actualization of Chilean Regulations in the field of of Air Pollution. PM.2.5

•News. We have provide news information in different subjects such as : Economy, New Technologies, Energy Efficiency, Inteligent cities, etc

•International Training in Environmental Medicine

GRADUATE INTERNATIONAL COURSE IN ENVIRONMENTAL MEDICINE

CeTeCáncer
Centro de Tecnologías para el Cáncer
Facultad de Medicina Universidad de Chile

International Theorical Course:
Advanced Complementary Technologies for Cancer Detection
Attendance: 85

International Practical Course:
Advanced Complementary GenomicTechnologies for Cancer Detection
Students selected: 15

A WEED IN OUR FIELD

CAMARA DE COMERCIO
CHILENO COREANA A.G.
한칠 상공회의소

BEAUTY AND HEALTH PRODUCTS IN 35 COUNTRIES

2014 APEC-VC Malaysia Workshop

Experience Sharing in Promoting Energy Conservation Improvement of Data Center

Yen-Chin Wang

Environmental Protection Administration
Executive Yuan, Taiwan
August 27, 2014

Outline

- Introduction
- Energy Conservation Strategy
  - Hot /Cold Aisle Rack Arrangement
  - Rack Cooling systems
  - Rack Uninterruptible Power Supplies (UPS)
- Energy Conservation Benefits

Introduction

Problems Encountered in Data Center

- ◆High (Excess) Power consumption of air-conditioning systems
- ◆Low space utilization
- ◆Poor Cooling effect
  - – Cold and hot air flow gets mixed
  - – Temperature distribution is not highly uniform

Energy Conservation strategy (1/4)

- ◆ Hot /Cold Aisle Rack Arrangement
- ◆Rack Cooling systems
- ◆Rack Uninterruptible Power Supplies (UPS)

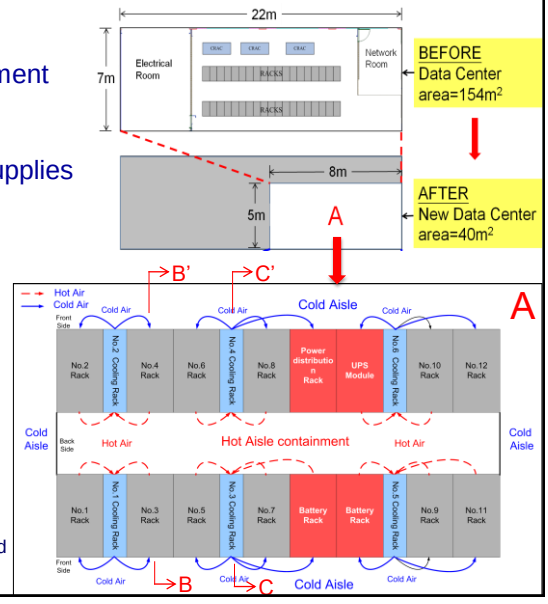


Fig. 1. Plan View of Taiwan EPA 's Data Center and the Reduction of Physical Space Utilization and Changes in the Energy and Cooling Management.

Energy Conservation Strategy (2/4)

Hot /Cold Aisle Rack Arrangement

◆Hot aisle was fully turned off and thus the hot air was transferred to cooling tower through the thermal cycling waterway.
◆To decrease the mixing of cold and hot air flow to achieve the temperature stability

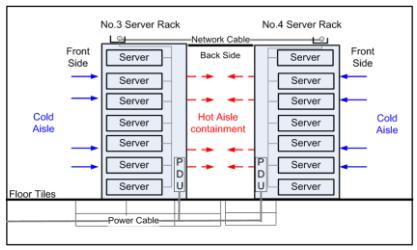


Fig.2. Cooling System Configuration in B-B' Section for No.3 and No.4 Server Rack.

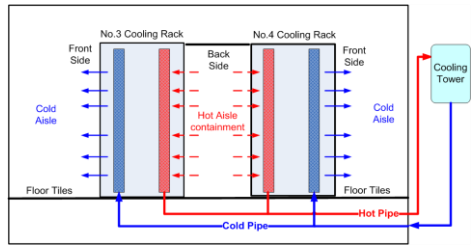


Fig.3. Cooling System Configuration in C-C' Section for No.3 and No.4 CoolingRack.

Energy Conservation Strategy (3/4)

Rack Cooling systems

◆Increase more than half space utilization
◆Enhance the efficiency of air conditioners

BEFORE

Pic.1. Three tradition air conditioner

AFTER

Pic.2. Six rack cooling system

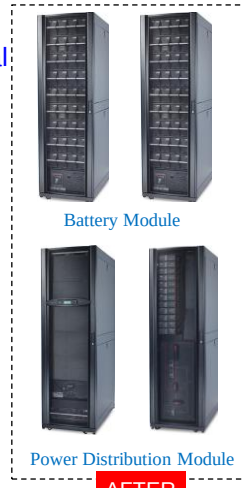
Energy Conservation Strategy (4/4)

Rack Uninterruptible Power Supplies (UPS)

- ◆Increase more than half space utilization
- ◆The consumption in energy conversion is minimal

BEFORE

Pic.3. Traditional UPS system



AFTER

Pic.4. Rack UPS system

Energy Conservation Benefits

◆In 2013, the total electric consumption of the data center decreased 50 % compared to that in 2012.

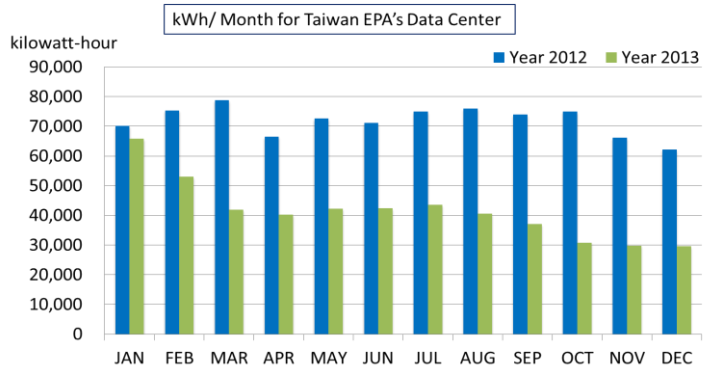


Fig.4. Comparison of Monthly Energy Consumption.


Thank You for Your Attention!

ENVIRONMENTAL TECHNOLOGIES & RESEARCH INITIATIVES OF APEC –VC PHILIPPINES

Carmel C. Gacho, Ph.D.
Supervising Science Research Specialist
Environment and Biotechnology Division
Industrial Technology Development Institute
Department of Science and Technology


INDUSTRIAL TECHNOLOGY DEVELOPMENT INSTITUTE

Mandates EO 128

ITDI

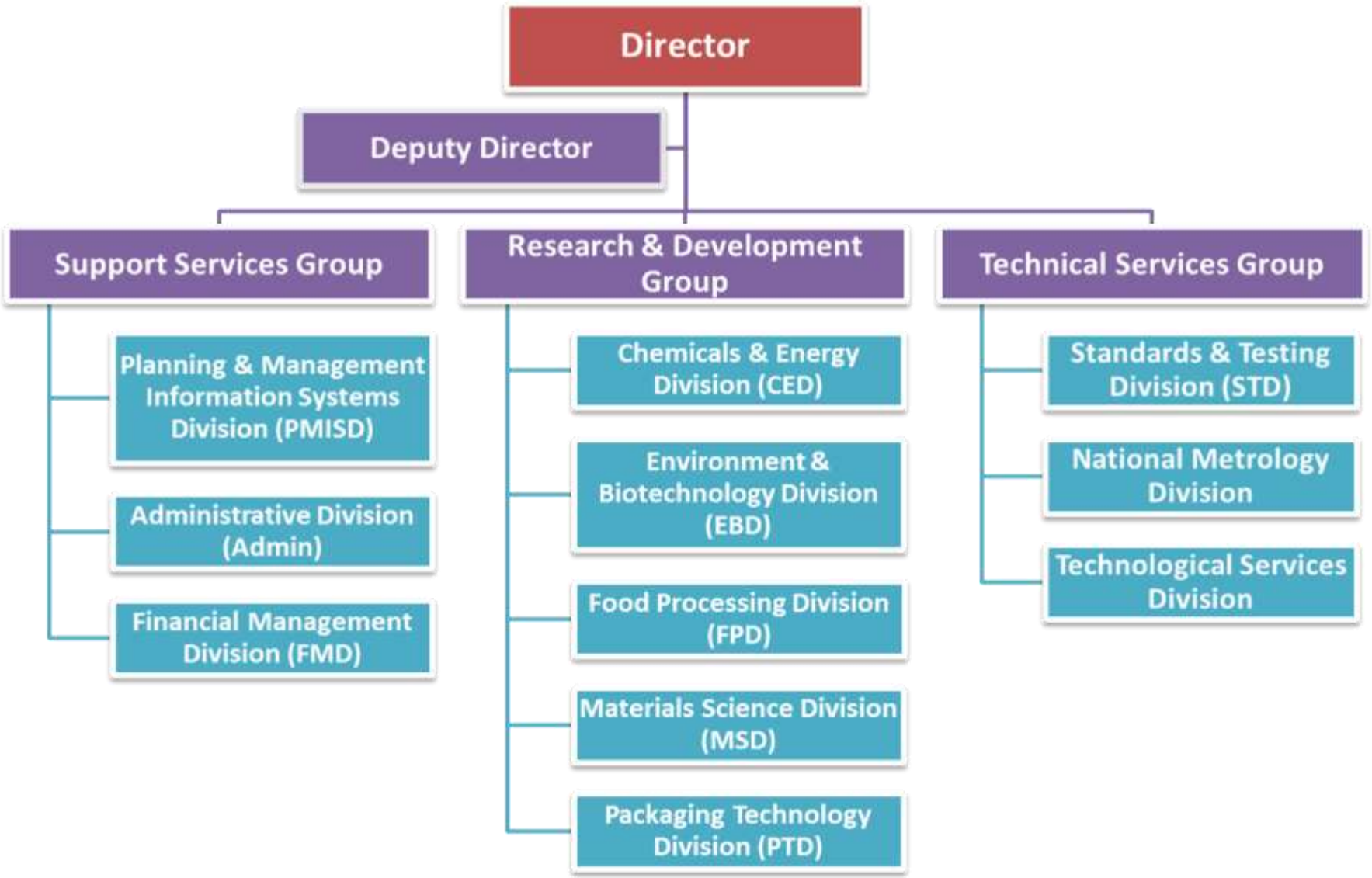
1. Undertake applied research & development to develop technologies and technological innovations in the field of industrial manufacturing, mineral processing, environment and energy.

2. Carry-out the transfer of research results directly to end-users or preferably via linkage units of other government agencies

3. Perform technical services, such as but not limited to, standards, analytical and calibration services mandated by law or as needed by industry

4. Organize training and provide technical advisory and consultancy services to industry clientele and end-users

ITDI ORGANIZATIONAL STRUCTURE



President Aquino's Key Results Area

DISASTER MITIGATION	POVERTY ALLEVIATION/ EMPOWERMENT OF THE POOR	INCLUSIVE ECONOMIC DEVELOPMENT	LASTING PEACE /RULE OF LAW	GOVERNANCE

DOST MANDATE

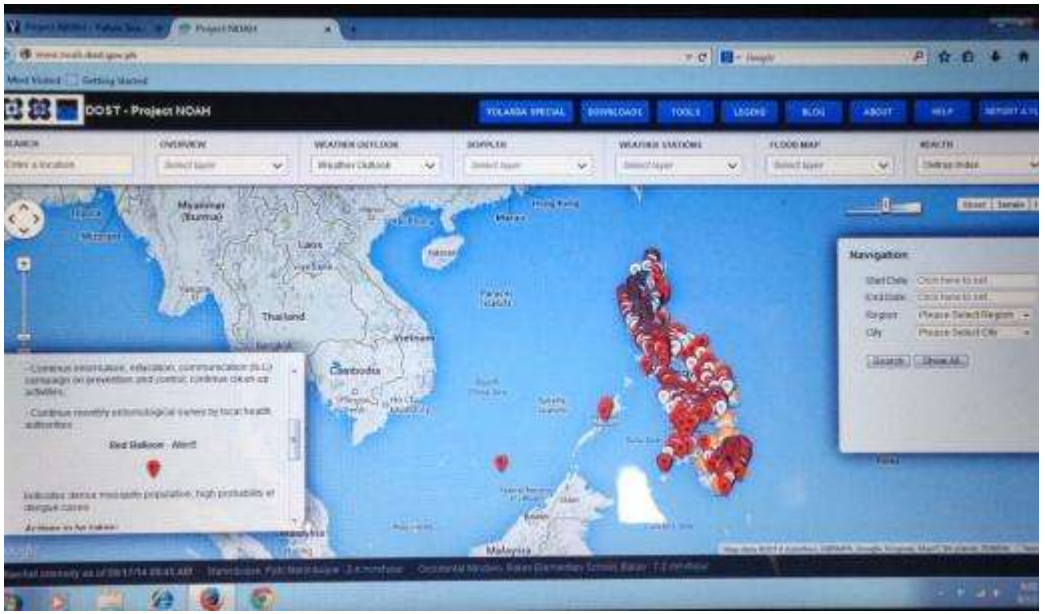
PROVIDE CENTRAL DIRECTION, LEADERSHIP AND COORDINATION OF ALL SCIENTIFIC AND TCHNOLOGICAL EFFORTS AND ENSURE THAT RESULTS THEREFROM ARE GEARED TOWARDS MAXIMUM SOCIO-ECONOMIC BENEFITS FOR THE PEOPLE

DOST PRIORITY PROGRAMS

- USE S&T TO ADDRESS PRESSING NATIONAL CONCERNS
- COUNTRYSIDE DEV'T & INCLUSIVE GROWTH
- INCREASE INDUSTRY COMPETITIVENESS
- IMPROVE DELIVERY OF GOV'T SERVICES THROUGH S&T
- HARNESS ENABLING EMERGING TECHNOLOGIES

NOAH Program
(Nationwide Operational Assessment Hazards)

The Philippines being a locus of typhoons, tsunamis, earthquakes and volcanic eruptions,is a hotbed of disasters.



Devastating impacts:
-huge number of casualties
- economic losses

Response:

launched NOAH - responsive program for disaster prevention and mitigation, specifically, for the Philippines' warning agencies to be able to provide a 6 hour lead-time warning to vulnerable communities against impending floods and to use advanced technology to enhance current geo-hazard vulnerability maps,

Nine (9) component projects under the NOAH program, namely:

1.Hydromet Sensors Development
2. DREAM-LIDAR 3-D Mapping Project
3.Flood NET-Flood Modelling Project
4. Hazards Information Media
5. Enhancing Geo-hazards Mapping
6. Doppler System Development
7. Landslide Sensors Development Project
8. Storm Surge Inundation Mapping Project
9. Weather Information

LIDAR Project
(Light Detection and Ranging) Technology

- **The equipment use Light Detection and Ranging (LiDAR) technology to generate detailed topographic maps of the Philippines.**

- **Google Earth and Google Maps lack 3D coordinate. It has few 3D maps but only for select cities, like New York in the US.**

- **The project's main deliverable is an accurate national terrain elevation map to be used for creating flood plain indundation maps and for performing on-demand flood simulations.**

ADMATEL Project
(Advance Material Testing Laboratory)

MAJOR EQUIPMENT/INSTRUMENTS:

1. Focused Ion Beam - Field Emission Scanning Electron Microscope (FIB-FESEM) - Create a precise cross section of Integrated Circuit (IC) to expose the defect using Scanning Electron Microscope with Energy Dispersive X-Ray (SEM-EDX).

2. Auger Electron Spectroscope (AES) - Surface Analysis tool that determines elemental composition as a function of depth of the materials.

3. Time of Flight Secondary Ion Mass Spectrometer (ToF SIMS) - surface analytical tool capable of detecting molecular and elemental components of a sample.

TARGET BENEFICIARIES:
-Manufacturing industries to enhance their productivity, improved their product quality and expand their technologies

-Filipino researchers, which is at par with foreign colleagues in terms of expertise and know-how, can conduct research and training (environmental and energy area) using this facility without leaving the country

.

Major Accomplishments (2013)

MAJOR PROGRAMS/ PROJECTS	ACCOMPLISHMENTS
Removal and decomposition of water soluble diesel fuel (WSDFF) fraction by TiO2 photo-catalysis	•Two types of immobilized TiO2 photocatalysts in pure water, the commercially-obtained TiO2 - coated silica gel beads and the laboratory-prepared N-doped TiO2-coated on borosilicate glass tubes were used to treat WSDFF. •The use of the commercial TiO2-coated silica gel beads degraded as much as 85% of the WSDFF within 2.5 hours. •Based on the results, TiO2 catalysis using TiO2-coated silica gel beads is a promising treatment for degradation of diesel fuel oil–contaminated wastewater.

Major Accomplishments (2013)

MAJOR PROGRAMS/ PROJECTS	ACCOMPLISHMENTS
Bench-scale treatment of tannery waste water using ITDI-isolated microbes	•Wastewater treatment in leather tanneries requires a complex wastewater treatment facility which includes physical, chemical, biological and other wastewater management systems.

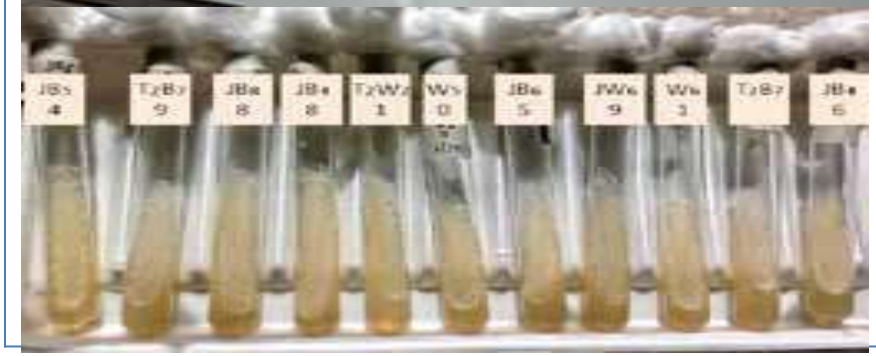
•The salinity of wastewater remained constant indicating the non-biodegradability of the salts and chemicals in the wastewater. Salt – tolerant strains are recommended for this particular type of wastewater.

Major Accomplishments (2013)

MAJOR PROGRAMS/ PROJECTS	ACCOMPLISHMENTS
Development of a bench-scale two-stage process for biogas production from swine waste effluent	•A two-stage bioreactor system consisting of two 30L-plastic drum-digesters connected in series was setup and batch-fed with organic load of 17% organic swine manure, 30% inoculum and 53% water. •Results from principal component analysis (PCA) showed positive correlations in parameters of total solids (TS), total suspended solids (TSS), chemical oxygen demand (COD) and biochemical oxygen demand (BOD). •Three of the parameters, TS,TSS, BOD exhibited significant percent reduction. •The bioprocess efficiency for the two reactors was computed to be 73.89%.

Major Accomplishments (2013)

MAJOR PROGRAMS/ PROJECTS	ACCOMPLISHMENTS
Isolation of beneficial microbes for biodegradation of animal and plant oil in fast foods wastewater effluents	



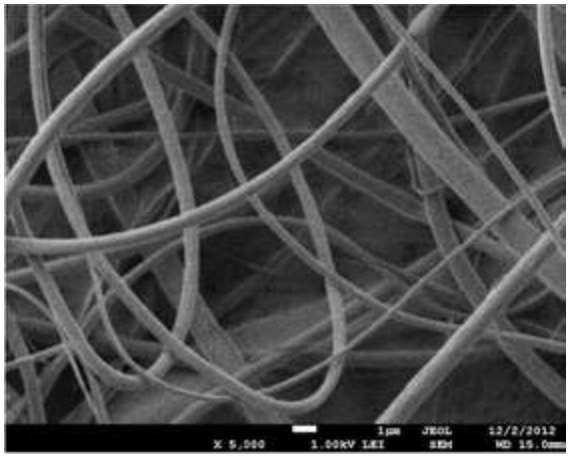
•Isolation of anaerobic microbes and screening for the treatment of fast food wastewater to reduce oil and grease under aerobic conditions were done.

• Of the 130 microorganisms from different wastewater of fast food chains, eleven (11) isolates were found promising.

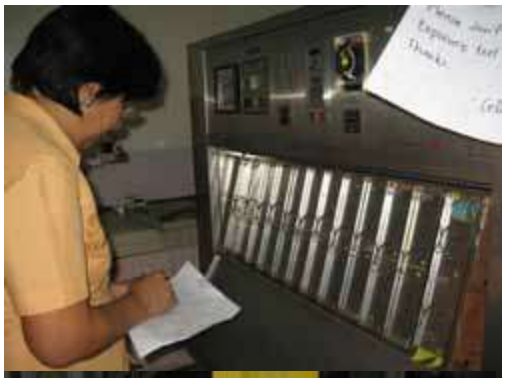
• Of the (11) eleven isolates tested for oil and grease reduction, isolates T2W2/1 showed 90.81% and 98.25% reduction in wastewater effluent while isolate JB4/6 has 98.25% reduction in simulated wastewater.

Major Accomplishments (2013)

MAJOR PROGRAMS/ PROJECTS	ACCOMPLISHMENTS
Development of electrospun cellulose acetate/chitosan nanofibrous membrane for removal of heavy metals from wastewater	•A novel electrospun nanostructured membrane from *kapok cellulose acetate-chitosan* blend was found effective in removing toxic heavy metal contaminants (such as cadmium, Cd2+) in aqueous medium through membrane adsorption. •The study showed that increasing the amount of chitosan in the blend increased the number of adsorption sites and decreased the average fiber diameter but beads and junctions occurred in the membrane. • The Cd2+ uptake analysis suited well the pseudo-second-order model and showed that substantial increase in the adsorption capacity occurred up to 6 hours.

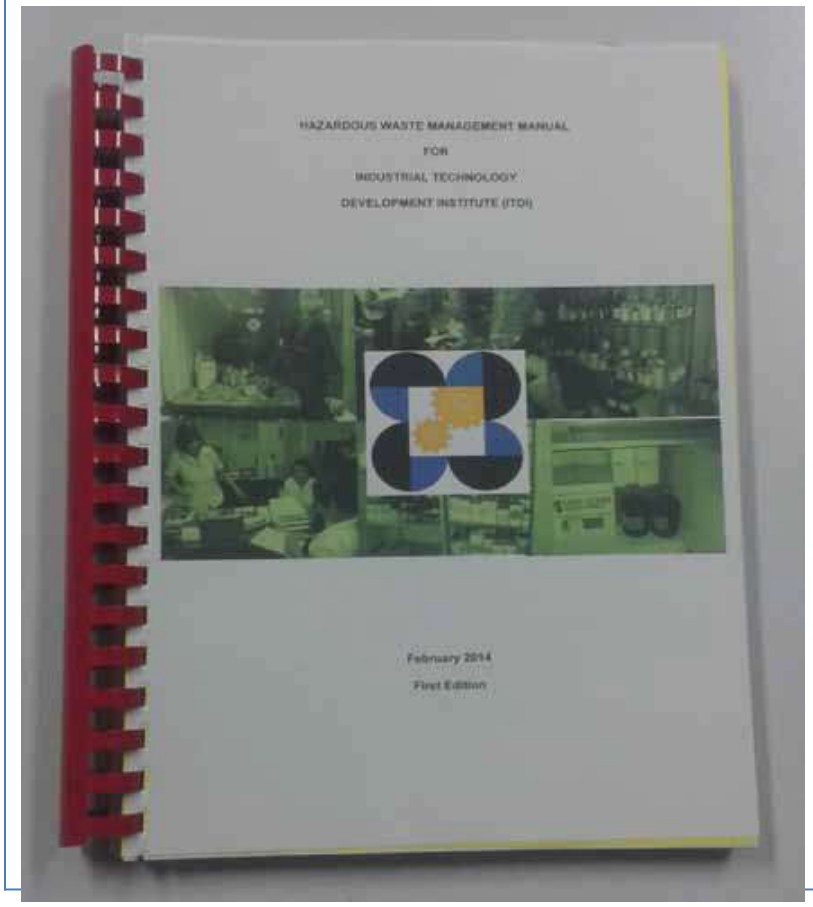


Major Accomplishments (2013)

MAJOR PROGRAMS/ PROJECTS	ACCOMPLISHMENTS
Comparative study on the effect of the use of different additive available in the market on the oxo-biodegradation of polyethylene plastic bags  	•Based on the manufacturer's claims, additives can be added to PE resins to enhance overall oxo-biodegradation. •A comparative analysis of data obtained from the Environment Technology Verification (ETV) showed that Additive A performed better compared to the other additives as to the acceleration of PE breakdown. •The limited prooxidant action of the additives in the PE is attributed to low oxygen permeability or recombination of polymer alkyl radicals at higher concentration.

Major Accomplishments (2013)

MAJOR PROGRAMS/ PROJECTS	ACCOMPLISHMENTS
Development of the ITDI Hazardous Waste Management Manual	



- **The Institute was finally granted an Environmental Compliance Certificate (ECC) on November 19, 2012.**
- **Hazardous Waste Management Manual as a reference guide for the proper implementation of the hazardous waste management program of the Institute.**
- **Benefits that could be derived for the Institute such as: reduced penalty on environmental compliance; minimal hazardous wastes disposal and wastewater treatment costs; less medical expenses to the researchers, staff and the community; safe and clean workplace; and good corporate image.**

Major Accomplishments (2013)

MAJOR PROGRAMS/ PROJECTS	ACCOMPLISHMENTS
Utilization of acid oil by-product from glycerin refining in the production of methyl ester using the continuous bio-fuel reactor	•Combined acid-catalyzed esterification and base-catalyzed •trans-esterification process was employed for converting acid oil into methyl ester. •Acid oil was derived from the refined wastes of crude glycerin. •The newly-developed continuous-type bio-diesel reactor which was fabricated by ITDI was used in this study. •The reactor is capable of esterification or trans-esterification with a capacity of 100 liters per hour. •Production time can be shortened as compared to the conventional batch-stirred tank.

Major Accomplishments (2013)

MAJOR PROGRAMS/ PROJECTS	ACCOMPLISHMENTS
Design of an energy- efficient reactor and boiler system	The modified-drum carbonizer was used to convert biomass waste materials to charcoal which can be utilized as supplementary fuel for carbonization and activation.
Use of surface-modified biomass activated carbon as adsorbent for the capture of post-combustion by-product, CO2	The activated carbon produced through steam injection in a fluidized- bed reactor can be utilized as filter medium for the removal of undesirable gas components from carbonization and activation and wastewater treatment. The maximum yields of 30% both for the carbonization and activation were comparable to the yields of Effigen SDN BHD of Malaysia producing charcoal and activated carbon from coconut shell using the same process. Activated carbon produced at 795 °C has a maximum iodine value of 680.96 mg/g which is comparable to the standard for High Density AC at 700 mg/g and can possibly be used for wastewater treatment applications. The utilization of the system would contribute greatly in uplifting the industry since it could increase the income potential of the countryside especially in areas where biomass waste resources are abundant, thereby generating more job opportunities.

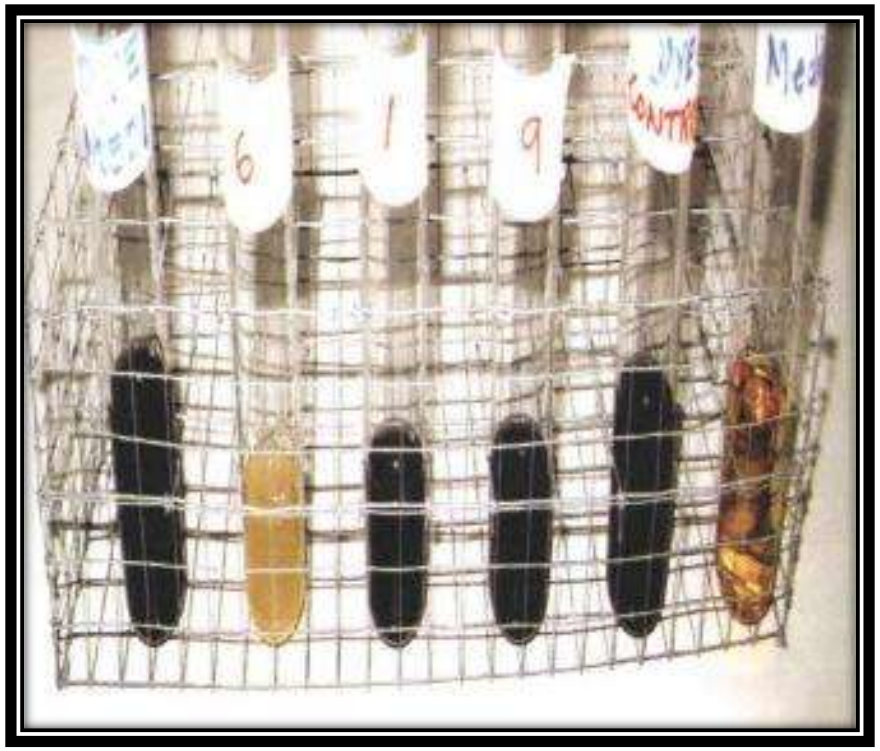
COMPLETED PROGRAMS AND PROJECTS (2012)

Microalgae for Wastewater Treatment and Biomass Production

- Several microalgal species were isolated from anaerobically digested swine wastewater from piggery farms.
- A mixed culture was selected based on stable growth and high biomass yield.

Microbial Decolorization of Natural Dyes in Textile and Fiber Product Effluents

- A bacterial strain was found to be an active dye-degrader for both natural and synthetic dyes.
- The percent color reduction of the isolate had reached a maximum of 98% after one week incubation.

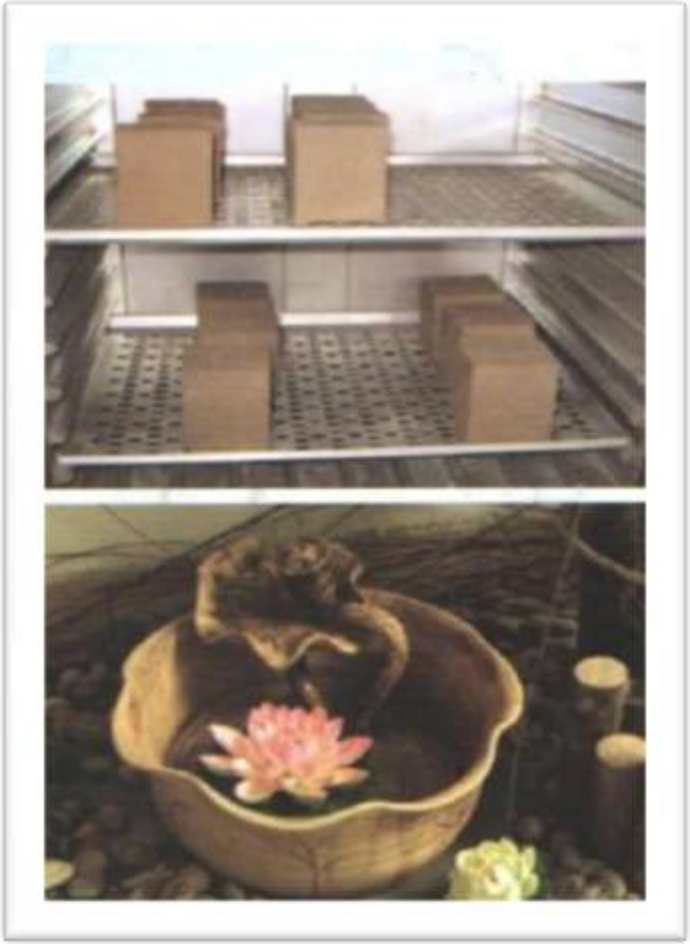


Microbial Removal of Chromium Compounds from Tannery Waste

- Locally isolated yeast was used to treat wastewater effluent contaminated with chromium at almost 100% removal rate.

Ceramic Clay Products from Solidified Tannery Waste Sludge

- Safe disposal of sludge by converting it to useful materials for decorative purposes
- The structural integrity of a sample at 1:3 waste-sludge ratio fired at 1000˚C was comparable to that of a commercial block.



Improvement of Production and Waste Management Practices of Leather Tanning

- Cleaner Production (CP) assessments and energy audits were made at a local leather tanning plant.

- Recommended several options that significantly prevent or reduce wastewater generation and energy consumption.

Utilization of Water Hyacinth for Biogas and Bioreactor Composting

- Biogas was successfully generated from pure freshly-ground water hyacinth using batch-type biomethanation process.
- Use of water hyacinth as bulking material for compost was also successful.

Clean Gas Production by Fluidized Bed Gasification of Jatropha By-Products for Heat and Power Applications

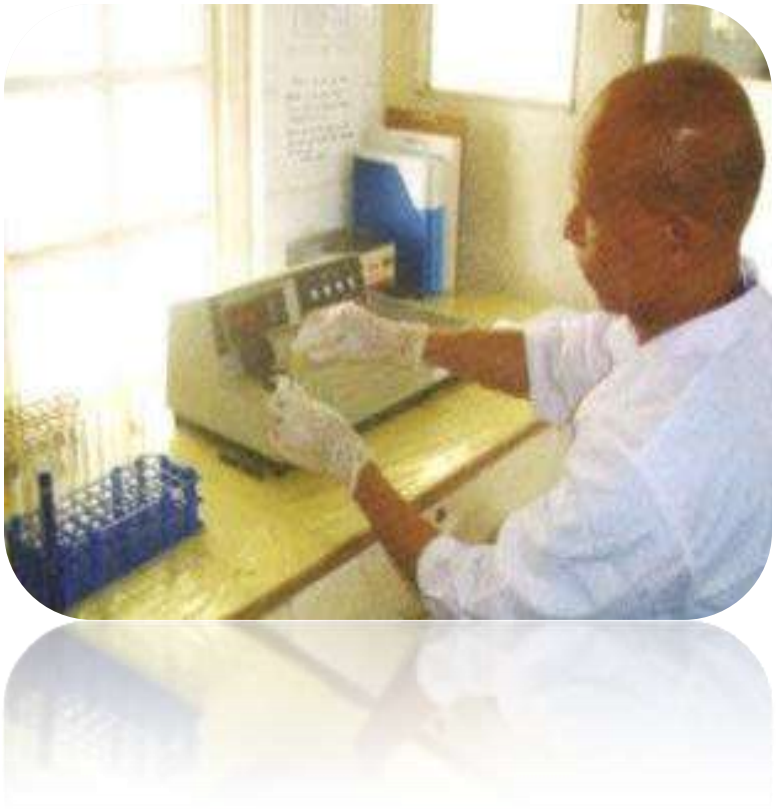
Fluidized Bed Gasification system creates clean gas from Jatropha by-product that has higher heating value compared to fuels from other biomass sources.

Glycerin Combined with Jatropha Waste By-Product as Fuel Substitute

- ITDI developed a combustible pellet composed of glycerine and Jatropha pressed cake.
- Involves a simple, inexpensive process creating a high heat value product

Biodesulfuration of Crude Oil

- Development of an alternative technology to hydrodesulfuration using microbes obtained from soil microcosm.
- Analysis indicated direct microbial catalytic conversion of crude oil.



Thermal Processing of Industrial Waste (polymer laminates) via Pyrolysis

- A pyrolyis system consisting of a reactor with condenser to collect oil and a water scrubber was designed and fabricated.
- It includes an LPG-fired chamber for pre-heating and a rotating paddle for distributing shredded polymer laminates.
- Capable of 69% oil recovery, which has a heating value of about 32,000kJ/kg.

Fuel Composite from Carbonized Jatropha By-Products and other Biomass Materials

- Four different types of fuels were created using varying compositions of Carbonized Jatropha, Carbonized Coconut Shell, and Carbonized Rice Hull.

Methyl Ester from Used Vegetable Cooking Oil Using Continuous-Type Biofuel Reactor

A transesterification process was carried out in a continuous-type biofuel reactor with a rated capacity of 100L/hr to create biodiesel from waste oil.

Microemuslified Hybrid Fuel from Jatropha and Coconut Oil

A process involving mixing oils with surfactants and water creates a thermodynamically stable fuel that has better gas mileage, better lux range, and smaller Carbon Footprint.

Other Related Programs/Projects

Capacity Building on Methane Emissions Recovery and Utilization from Landfills in the Philippines

The project is in line with the goals of the Methane to Markets Partnership, which is to promote the cost effectiveness, near-term methane recovery and use as a clean energy source with the end in view of enhancing economic growth, promoting energy security, improving the environment and reducing greenhouse gas emissions.

Performance and Safety Assessment of the Co-Location of the Near Surface Radioactive Waste Disposal Facilities and Borehole Disposal Concept in the Philippines

- Long term safety of a surface repository was assessed by studying favorable site characteristics, engineered design structures, appropriate form and content of waste, operating procedures and institutional controls.

- Disposal system will be established to isolate the waste from the accessible environment; to control releases of radionuclides that reach the accessible environment; and (3) to reduce the consequences of any unacceptable releases to the accessible environment.

Environmental Technology Verification (ETV) Program –Philippines

- **ETV** or **Environmental Technology Verification** is the process for developing, conducting, and reporting scientifically objective evaluations of industrial and environmental technologies, which will be determinative of their functional performance under stated conditions as to provide a reasonable basis for future decisions by technology enablers.

- ETV conducts actual tests on technologies as supervised by invited pool of experts. It determines whether it operates effectively based on the claims of technology enablers

ETV-10-020	Robton Industries, Inc.	Biodegradable Carry Bag
ETV-10-021	5455 E-Solutions, Wastewise International and Datatrail Corporation	EM 23 Technology
ETV-10-022	Flygon Trading Company	ART (Advance Recycling Technology) System
ETV-10-023	KIMWIN Corp	Puregold plastic bag and Wilcon plastic bag
ETV-10-024	Basic Packaging Corporation	SM Department Store Biodegradable Bags
ETV-10-025	Prima Plastic Manufacturing Corp.	SM Yellow Sando Bag
ETV-10-027	Bestwin Multi-Enterprises Corporation	SM Sandobags
ETV-10-028	Trans-Island Plastic Industries Incorporated	BDA (Biodegradable Additive)
ETV-10-029	JRD Manufacturing Corporation	SM Plastic Bags
ETV-10-030	Seelastic Manufacturing	Plastic Bag
ETV-11-001	ESTA Trading Corporation in collaboration with Plastic Manufacturers	Degradable Additive BDA
ETV-11-002	AMCA Smart Solutions, Inc.	Eco-G3000
ETV-11-006	Rainbow_Holding Inc.	PER Machine
ETV-11-009	K-Energy, Inc. / SEA Marconi	SEA MARCONI Technologies SAS
ETV-11-011	Pustanan Printers – Cebu	Symphony D2W Oxo-Biodegradable Plastic
ETV-11-014	GTEC Trading	ECM Masterbatch Pellets (additive for plastic products)
ETV-11-015	Emerald Energy, Inc.	Voltage Power Optimization
ETV-11-016	UHFS Hydrogen Fuel Cell Manufacturing	Hydrogen Fuel Cell
ETV-11-017	Clean Echo Techwin, Inc.	G-50 Waste Processor
ETV-11-018	OTG Technologies Enterprise	GTO (Green Technology Oil)
ETV-11-019	MCR Industries	Reverte BD-92771
ETV-11-026	Aquaryuri Jrko. Corp.	Jarikko Purification System
ETV-11-028	Symphony Environmental Ltd.	Symphony d2w oxo-biodegradable additive

Department of Science and Technology
Republic of the Philippines

INDUSTRIAL TECHNOLOGY DEVELOPMENT INSTITUTE

Science-based know-how and tools that enable the agriculture sector to raise productivity to world-class standards	Innovative, cost-effective and appropriate technologies that enable MSMEs to develop and produce competitive products that meet world-class standards	State-of-the-art facilities and capabilities that enable local industries to move up the value chain and attain global competitiveness	Improved quality healthcare and quality of life thru science, technology and innovation

PROGRAMS

ITDI R& D Programs/Projects 2015 onwards

- PACKAGING TECHNOLOGY
- FOOD PROCESSING AND ENGINEERING
- RENEWABLE ENERGY
- CHEMICALS AND PHARMACEUTICALS
- NATIONAL METROLOGY
- ENVIRONMENTAL PROTECTION
- NANOTECHNOLOGY
- ITDI CONVERGENCE ON INDUSTRIALIZATION OF ROOTCROPS
- ITDI CONVERGENCE ON COLORANTS, FLAVORS, AND SPICES
- NATIONAL STANDARDS FOR CHEMICAL MEASUREMENTS

ITDI R&D Programs/Projects 2015 onwards

ENVIRONMENTAL PROTECTION

2015 MOOE : ₱ 8.1 M

Sub-Programs:

- **Waste Utilization**
- **Industrial Pollution Control**
- **Waste Management**

- **Development of Appropriate Particulate Matter Pollution Control for Small and Medium Enterprises**
- **Characterization and Air Pollution Dispersion Modeling from Point Sources**
- **Isolation, Identification and Characterization of Anaerobic Bacteria for Use in the Treatment of High Oil and High BOD Wastewaters**
- **Process Optimization for the Mass Production of Anaerobic Bacteria for Use in the Treatment of High Oil/BOD Wastewaters**
- **Development of Second Generation Plastic Densifier**
- **Development of Small and Compact Bioreactor for Condominium and Subdivision Application**

ITDI R&D Programs/Projects 2015 onwards

RENEWABLE ENERGY

2015 MOOE : ₱ 1.842 M

- **Fluidized Bed Combustion and Gasification of Refuse-Derived Fuel (RDF) from Biomass-Plastic Wastes for Heat and Power Generation**
- **Activated Carbon and Charcoal Briquettes from Waste Peels of Selected Fruits and Root crops**
- **Isolation, Identification and Characterization of Microorganism for the Production of Ethanol from Food Wastes**


obrigado
Dank U
Merci
mahalo
Köszi
спасибо
Grazie
Thank you
mauruuru
Takk
Gracias
Dziękuję
Děkuju
danke
Kiitos

APEC Concept Note

Please submit through APEC Secretariat Program Director. Concept Notes of more than 3 pages (including title page) or incomplete submissions will not be considered.

Project Title:	International idea competition for environmental technology exchange
Fund Source *(Select one):* ☑ Operational Account ☐ TILF Special Account ☐ APEC Support Fund **For ASF:** As per Guidebook Ch. 3, list **ASF Sub-fund** if appropriate for this project:	
APEC forum:	PPSTI
Proposing APEC economy:	Republic of Korea
Co-sponsoring economies:	Japan, Malaysia, Vietnam, Chinese Taipei, The Philippine, Chile
Expected start date:	January 2015
Expected completion date:	December 2015
Project summary: **Describe the project in under 150 words. Your summary should include the project topic, planned activities, timing and location:** *(Summary must be no longer than the box provided. Cover sheet must fit on one page)*	This project aims to bridge the divide between developing and developed economies as well as to promote the sustainable growth of APEC through sharing environmental information on such things as technology, policy, research, products, etc. As a follow-up of the previous project, this project promotes the APEC-VC gateway website (apec-vc.com), which has been developed to exchange environmental information on environmental technologies as well as information gathered from governments, businesses and environmental institutions. An international idea contest will be held for boosting environmental technology exchanges via this website. Various stakeholders in APEC economies (environmental industrial employees, officials, researchers, etc.) will be able to submit their ideas about revitalizing the website. The best submissions will be adopted and applied to achieve the ultimate goal of this project.
Total cost of proposal: ***(****APEC funding + self-funding):* ***USD***	**Total amount being sought from APEC (USD):** 85,000 ***By category:*** *Travel:* 20,000 *Labor costs:* 5,000 *Hosting:* 10,000 *Publication & distribution:* N/A *Other:* 50,000

Project Overseer Information and Declaration:

Name: Kim, Jong Sun

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

As Project Overseer and on behalf of the above said Organization, I declare that this submission was prepared in accordance with the **Guidebook on APEC Projects** and any ensuing project will comply with said Guidebook. Failure to do so may result in the BMC denying or revoking funding and/or project approval. I understand that any funds approved are granted on the basis of the information in the document's budget table, in the case of any inconsistencies within the document.

Kim Jong Sun

Name of Project Overseer

Date: July 21, 2014

Project Synopsis

1. **<u>Relevance – Benefits to region:</u> What problem does the project seek to address? What is the relevance of the project? Does it have sustained benefits to more than one economy?**

   There are a number of economies who have advanced technologies, excellent policies and innovative research in renewable energy, energy efficiency, low carbon technology, etc. However, the economies that have started their industrial development later do not. In particular, environmental SME's are currently being challenged by overseas markets due to both limited resources and a lack of information. To solve this matter, we developed a single entry point for exchanging environmental information (www.apec-vc.com). This website collects diverse information from the Asia-Pacific region. Anyone can find and download this data at no charge.

   <u>Relevance – Rank:</u> Which Rank in the annual *APEC Funding Criteria* does this project fall under? Briefly explain why. Is it also linked to other Ranks? If so, briefly explain which/how.

   This project aims to bridge the divide between developing and developed economies and to support the SME's development, which includes access to the global market. Consequently it promotes the sustainable growth of APEC through the sharing of environmental information. Thus this project linked to Rank 1 and Rank 2.

2. **<u>Objectives:</u> Describe the 2-3 key objectives of the project. (e.g. ensure workshop participants will be able to…; to create a framework…; to develop recommendations…; to build support…; to revise strategies…; to create an action plan;…to increase knowledge in; to build capacity in… etc.)**

   *** Promote APEC-VC Gateway web site**

   The first objective is to promote the APEC-VC Gateway website (www.apec-vc.com), which was developed by the APEC funding project. This website was completed in January 2014 to provide an online space for the exchange of information and has been collecting data relating to the environmental reports and policies of the economies of each member. However, in order to achieve the purpose of the project, more participation of stakeholders is needed. Thus we have to promote this website so as to attract more visitors and share more data.

   *** Recruit ideas to boost information exchange and enhance efficiency for the gateway website**

   The second objective is to establish concrete measures to boost the exchange of information and to enhance efficiency for the gateway website. There are a variety of stakeholders such as environmental industry employees, officials and researchers, etc. We will hold a competition enabling us to receive ideas from these holders about the type of information that is required, the utilization of said information, as well as P.R. directions so that more people can participate.

   *** Bridge the gap between the developed-developing economies**

   The ultimate goal is to bridge the gap between the developed and developing economies and to promote connectivity and Green Growth though technology improvements and development of the environmental industry.

3. **<u>Alignment – APEC:</u> Describe specific APEC priorities, goals, strategies, workplans and statements that the project supports, and explain how the project will contribute to their achievement.**

   Through this project, SME's in the Asia-Pacific region will be able to easily access the latest information on new technology and eco-products among various countries. This will benefit them by supporting the development of technology and/or production. Therefore, this is very beneficial, not only for economies that will potentially have environmental

problems solved but also, for achieving the APEC's primary goal: to support sustainable economic growth and prosperity in the Asia-Pacific region.

Alignment – Forum: Briefly explain how the project is aligned with your forum's workplan / strategic plan.

The project is currently in progress in PPSTI-WG PPSTI 03 2013: Development of the APEC-VC single entry point of the follow-up project, PPSTI, as well as contributions to achieving the goal for Sub Group C (Connectivity). In particular this project is working on the PPSTI Strategic Plan's Objectives C.3. Create STI ecosystems & STI networks that strengthen regional STI linkages continue to go out to the main activity.

4. **Methodology: How do you plan to implement the project? In this section, briefly address the following:**
   - ***Workplan:*** **Project timelines, dates of key activities and deliverable outputs.**

Time	Activities	Milestone/Output
January – March 2015	Contract with a contest exhibit agency	RFP, Proposal, Action Plan, Contract
March – May 2015	Hold a contest promoting ideas	Entries
June 2015	Preparation of Workshop	Selection of Participants
June-July 2015	Preparation of Workshop & Awards ceremony	Workshop (Seoul)
July – October 2015	Economy Assignment, Monitoring, and Progress Report	Submission of Progress Report
November 2015	Finalizing the Final Report	Submission of Final Report
December 2015	Publication & Distribution of the project outcome	Result analysis

   - ***Beneficiaries:*** **The proposed selection criteria for participants, beneficiary profiles (e.g. workshop participants, end users, policy makers, researchers/analysts, gender) and how they will be engaged.**

     The greatest benefit of this project is that various stakeholders, including actual users, policy makers and researchers, can raise their voices through participation of the competition. Actually, in South Korea many government agencies hold competitions to facilitate the participation of the people and improve polices.

   - ***Evaluation:*** **Potential indicators developed to measure progress, project outcomes and impacts/successes. Where possible provide indicators which could assess impacts on women.**

     There are three potential indicators to measure the project :
     * Contest and received ideas
     * Final report on the contest
     * Visitor numbers of gateway website

   - ***Linkages:*** **Information on other APEC and non-APEC stakeholders and how they will be engaged. If and how this proposal builds on (but does not duplicate) the work of other projects. How will this activity promote cross fora collaboration?**

     To promote collaboration and to improve the technology of SME's access to the global markets we are looking for ways to connect with other APEC such as SME-WG and RTAs/FTAs-WG. Furthermore, any visitors to our gateway website can easily find and download this data at no charge.

APEC VC MALAYSIA

Nik Mohd Noor Faizul Md Saad &
Prof. Dato' Dr. Mazlin Bin Mokhtar

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

GREEN TECHNOLOGY INITIATIVES IN MALAYSIA; CURRENT STATUS

- Malaysian Government has given greater focus on **green developments.**
- Green technology as the **new growth engine** for Malaysia
- ensure Malaysia remains competitive in the international markets for **sustainable products**

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NATIONAL GREEN TECHNOLOGY POLICY

- **Definition of Green Technology:**

The development and application of products, equipment and systems used to conserve the natural environment and resources, which minimizes and reduces the negative impact of human activities.

- **Satisfy any of the following General Criteria :**
  - **minimizes degradation** to the environment;
  - **has zero or low green house** gas (GHG) emission;
  - **safe for use and promotes healthy** and improved environment for all forms of life;
  - **conserves** the use of energy and natural resources; and
  - **promotes** the use of renewable resources

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National Green Technology Policies

Launched in 2010

OBJECTIVES:

- To **reduce** the energy usage rate and at the same time increase economic growth
- To **facilitate** the growth of the Green Technology industry and enhance its contribution to the national economy
- To **increase** national capability and capacity for innovation in Green Technology development and enhance Malaysia's competitiveness in Green Technology in the global arena
- To **ensure** sustainable development and conserve the environment for future generations
- To **enhance** public education and awareness on Green Technology and encourage its widespread use

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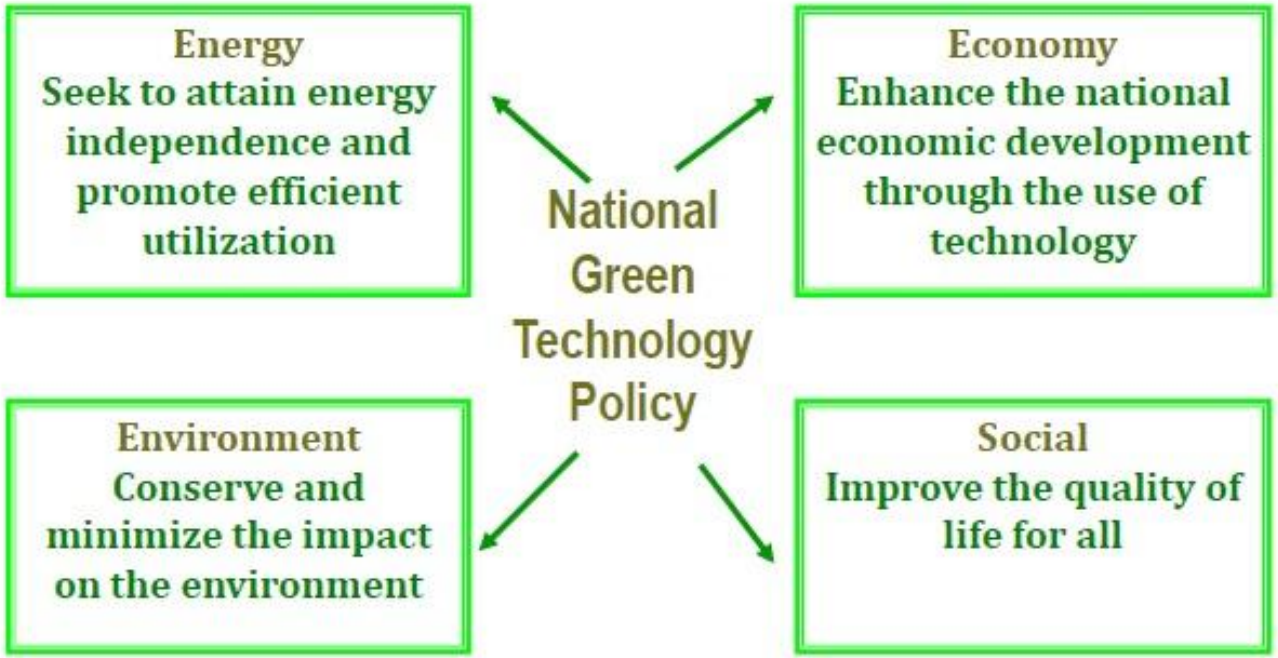
NATIONAL GREEN TECHNOLOGY POLICY

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



PROJECT AND PROGRAMMES

1. National Green Technology & Climate Change Council (MTHPI):

a. Function:
-To **formulate policies and identify the strategic issues** in the National Green Technology Policy development and climate change.
- Coordinates, monitors and evaluates the **effectiveness of the National Green Technology Policy and Green Technology** programmes and climate change at the national level.

b. This committee involves the Secretary General within the Ministries concerned and is chaired jointly by the Secretary General of Ministry of Energy, Green Energy and water & Ministry of Natural Resourses and Environment

The Steering Committee will advise MTHPI the following matters:
(i) **Coordination and cooperation** between various government agencies;
(ii) **Effective government policies** and their implementation;
(iii) **Improving the fiscal and support mechanisms** and
(iv) **Assessment** of national policy mechanisms to support the objectives and policies of the Green Technology and Climate Change Policy.

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PROJECT AND PROGRAMMES

2. Green Township:

a. Green Township is one of the Ministry initiatives in **combining all the key sectors outlined** in the National Green Technology Policy .
b. Government had agreed for **Putrajaya and Cyberjaya to become the Green Township pilot project** which will be a development model to the other cities in Malaysia.
c. A Green Township Coordinating Committee of Putrajaya and Cyberjaya was established to review the coordination issues of the development of Putrajaya and Cyberjaya as a Green Township.
d. A committee was established under the Green Technology and Climate Change Council (MTHPI) framework which is to be known as the **Green Neighbourhood Development Working Committee** which is responsible to coordinate the implementation of legislation, policies, guidelines, programs, activities and role of responsible agencies in the implementation of the Green Neighbourhood.

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PROJECT AND PROGRAMMES

3. Green Malaysia Plan:

a. The Green Malaysia Plan 2030 **details the strategic direction** for the country to implement green technology policies that will drive the change into a green economy, through the harmonisation of economic growth with environmental sustainability.
b. The Plan describes **implementable actions** arise from the five strategic thrusts of the policy namely:

- Institutional Frameworks
- Conducive Environment
- Human Capital Development
- Research and Development
- Promotion and Awareness

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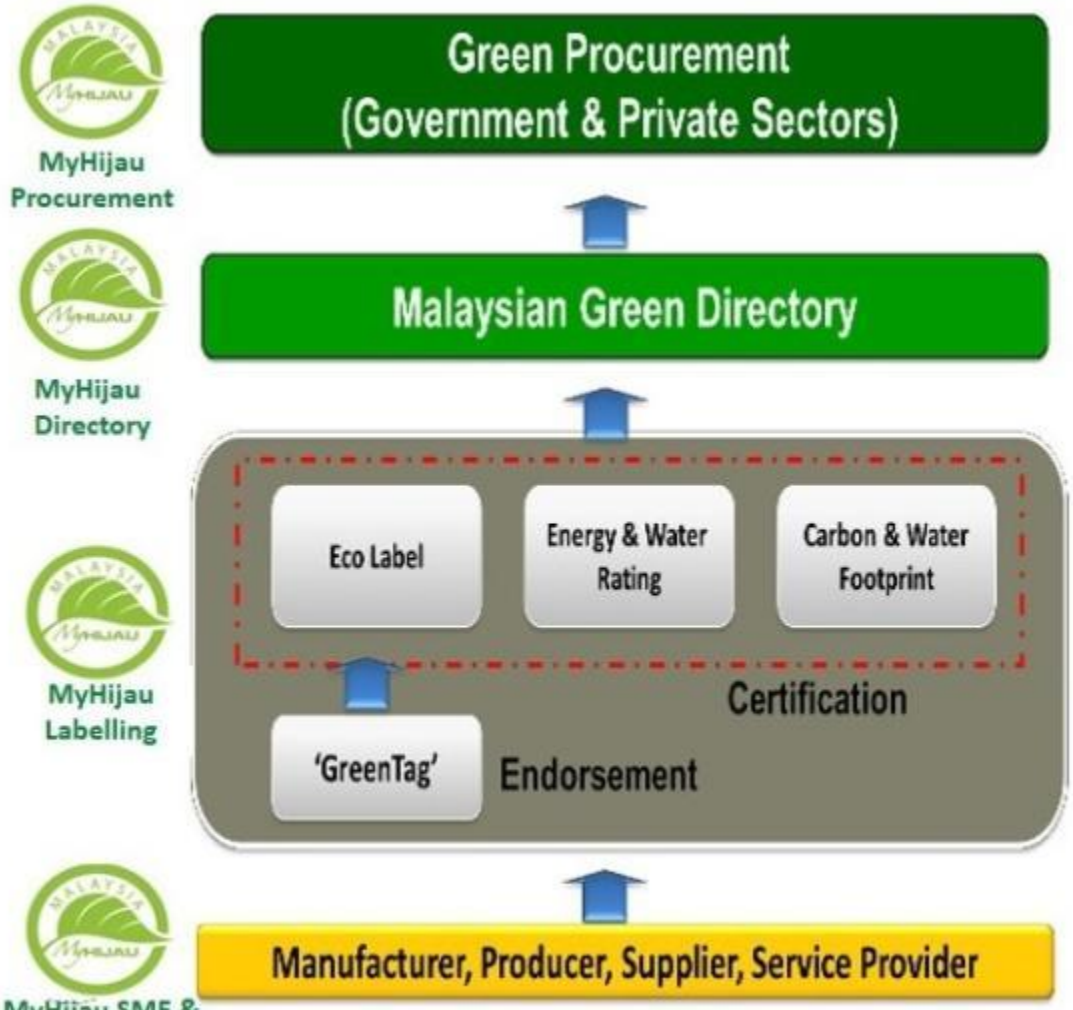
PROJECT AND PROGRAMMES

4. Green Procurement:

a. Green Procurement is defined as a **procurement approach** of products and services that conserve the natural environment and resources, which reduces the negative impact of human activities.
b. Green procurement **integrates** environmental considerations (in addition to cost and quality considerations) into the procurement process.
c. Recognizing the importance of Government Green Procurement (GGP), the Malaysian government has engaged in **various initiatives to boost demand for green products and services** with the target set **at 50% of the selected products and services purchased by the government sector are eco-labelled by the year 2020**. The Malaysian government has acknowledged the importance of GGP and initial steps have been carried out towards its implementation.

4. Green Procurement:

d. Below is the GGP process flow, based on GreenTech Malaysia's sustainable procurement initiatives.



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PROJECT AND PROGRAMMES

4. Electric Mobility:

a. To usher in the era of electric mobility and position Malaysia as the preferred hub for the production of right-hand drive electric vehicles (EVs) for the world market, the flagship Electric Mobility project was identified as a key driver..

b. Under this flagship project, we aim to increase public and industry utilisation of EV across Malaysia's transportation sector. By incorporating clean fuel and vehicle technology, we also aim to establish Malaysia as a high technology and green manufacturing hub with a thriving eco-system across the entire EV supply chain.

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PROJECT AND PROGRAMMES

5. Sustainable Living :

a. Sustainable living is essentially the application of viability and eco-friendly lifestyle that is primarily energy-saving standard of living which meets ecological, societal, and economical needs without compromising the environment.
b. Significant factors that attribute to sustainable living are sustainable design and sustainable development.
c. Sustainable design incorporates the development of appropriate green technology, which is a staple of sustainable living practices.

PROJECT AND PROGRAMMES

5. Sustainable Living :

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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.

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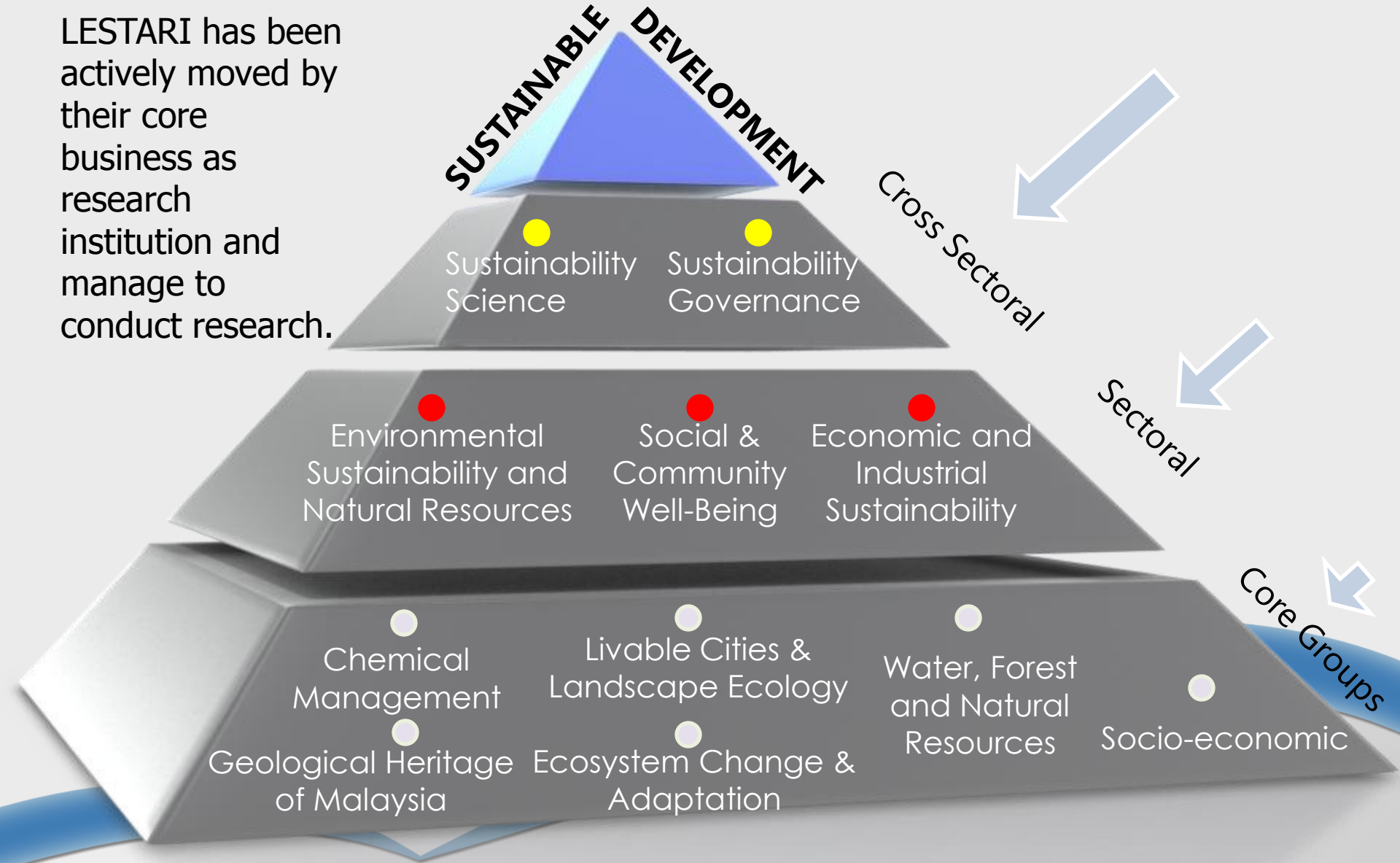
Institute for Environment and Development (LESTARI)

Integrated and Holistic Approach

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



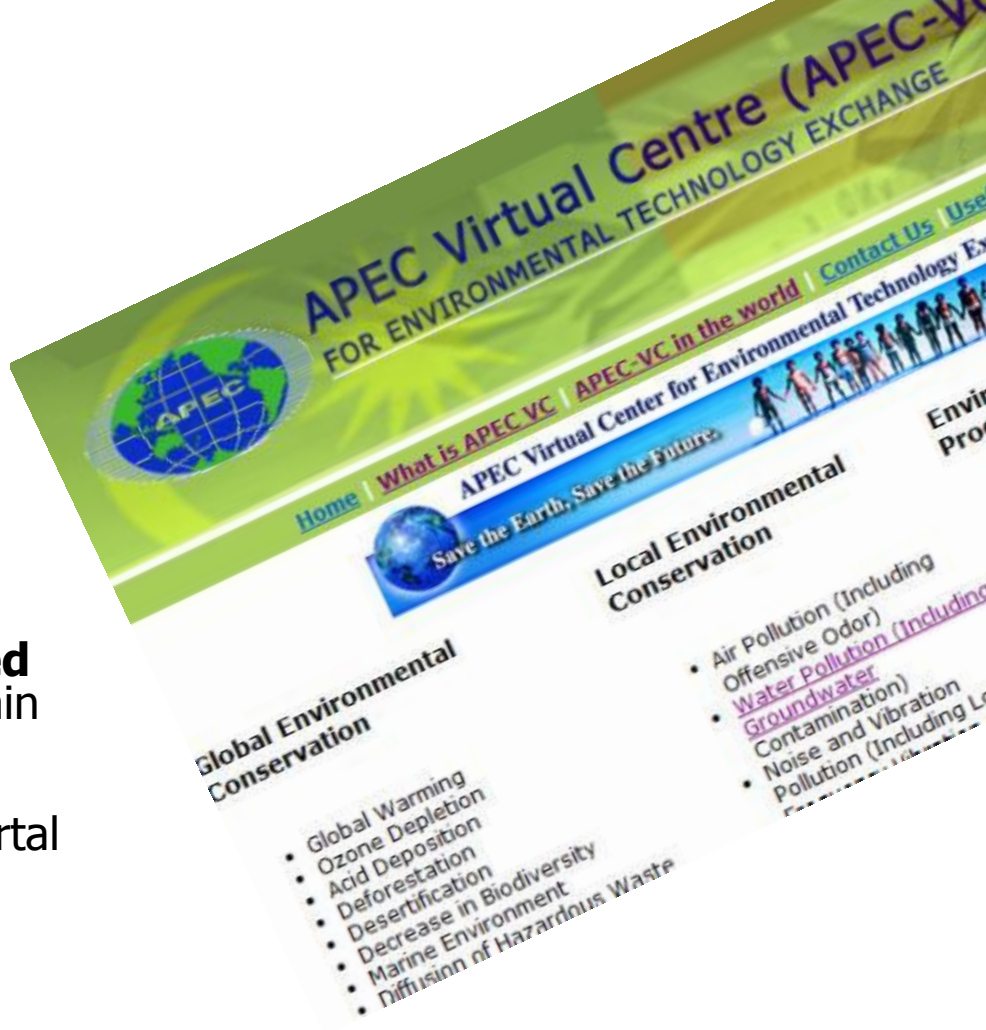
Current Situation

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

2. Research and Innovation Initiative

- UKM AS Research University has 12 Niches supported all faculties and institutes .

- Since Establishment untill June 2014, LESTARI conducts more than 230 research projects.

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Current Situation

Some Current Highlighted Research Projects:

Research Projects	
Assessment of Existing National Legal Framework and Measures for the Ratification of Stockholm Convention on Persistent Organic Pollutants (POPs) in Malaysia	MOE
Harmonising Environmental Considerations with Sustainable Development Potential of River Basins	MOE
Learning for Change: Education for Sustainable Development in Malaysia	MOE
Politics, Governance, Experiences and Responses to Flooding from the Locals and Migrants Perspective in Asian	MOE
Assessing Community Risk Insurance Initiatives and Identifying Enabling Policy and Institutional Factors for Maximizing Climate Change Adaptation and Disaster Risk Reduction Benefits of Risk	IGES , JAPAN

Current Situation

Some Current Highlighted Research Projects: (CONTINUE..)

Research Projects	Funder
Developing a Multi-criteria Decision Support System for Urban Disaster Management	Research Univ Fund
Disrupted Ecosystem Connectivity and Ecological Dynamics of the Tidal Wetland Complex: A Pressing Issue	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

3. Technology Transfer & Sharing Through Outreach Activities

Since June 2013 – August 2014 LESTARI has **collaborated** with other agencies to conducts activities in national and international platform focuses on **sharing, promoting and implementing** of sustainable practices of environmental management and conservation as well

Current Situation

Some Highlighted activities:

Activities	
UNESCO Water Watch Programme for Young Leaders	Jan 2014
Seminar on Lake and Wetland	Feb 2014
Sustainability Science Workshop	Feb 2014
Water Information Access Kanival for Community	April 2014
1st National Conference on Non-Point Sources Pollution	May 2014

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Current Situation

Some Highlighted activities (continue…):

Activities	
Malaysia Water Resources Management Forum 2014	June 2014
14th Science Council of Asia (SCA14) International Conference and Science Council of Asia General Assembly	June 2014
The Intergovermental Panel on Climate Change (IPCC) 4th Core Writing Team Meeting for the AR5 Synthesis Report	July 2014
Evidence for Disaster Risk Reduction and Climate Change Adaptation Effectiveness of Risk Insurance: Challenges and Opportunies	July 2014
Workshop on Atmospheric Chemistry and Climate Change in Asia 2014	July 2014

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Terima kasih

Thank YOu

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UNIVERSITI KEBANGSAAN MALAYSIA

APEC-VC Malaysia Workshop 2014

Project Report of the APEC Virtual Center Japan

August 27,2014

Supporting Committee for APEC Virtual Center for Environmental Technology Exchange, Japan

APEC-VC Malaysia Workshop 2014

Project & activity of VC Japan in 2013

It has passed one year since the secretariat of APEC-VC Project was shifted to VC Korea. What was achieved for the past one year is the extension of APEC-VC project mandate and the success in getting APEC Fund. Through these achievements, the structure to promote the project has been built.

At the Seoul Workshop in June 2013, the 2-year project plan was agreed by participants.

VC Japan contributed to promoting the project, in cooperation with VC Korea.

We summarized what we did and achieved through various activities and compiled them into a summary documentation. This will be submitted to our corporate members and related organizations supporting the VC Japan.

Enhancing the APEC-VC network

International exchange project to enhance the APEC-VC network

1.Seoul Workshop

- Developing a roadmap for the future VC project
- Developing a plan to utilize the APEC-VC gateway website

- VC Japan sent three participants to the Workshop.
- Presentation ceremony
  VC Korea presented a memorial to VC Japan.

2. Meeting with KEITI President

Mr. Dan, Chairman of Advisory Committee for Supporting Committee for APEC -VC Japan had a meeting with Mr. Seung -Joon Yoon, President of KEITI.

①He expressed his thanks for what VC Japan contributed to the VC project.
KEITI makes efforts to contribute to the APEC mission through the APEC-VC project.

②KEITI responds to measures against the global warning and promotes environmental businesses for SMEs in the APEC region.

③KEITI asked VC Japan to cooperate with VC Korea in managing the VC project.

Strengthened functions of VC Japan

1. Enhancing APEC-VC Japan's information dissemination capacity
Developing content meeting needs at home and abroad and Japan's environmental policy and uploading it in the website (http://www.apec-vc.or.jp/e/)

・The Application of Membrane Separation Process to Domestic and Industrial Wastewater Treatments.

・Measures for Nitrogen Removal in Environmental Water in Developing Countries.

Plan to develop content dealing with the problem of trans-boundary pollution represented by PM 2.5

2. Co-organized event with other organizations
By utilizing the APEC-VC human network, we participated in events organized by Society of Environmental Conservation Engineering and others as a co-organizer.

- Learning from the site of the large landslide in the Kii Peninsula
- Current trend of nitrogen treatment by ANAMMOX(anaerobic ammonia oxidation)

- Seminar held in Aug 2014 with NPO Groundwater Usage Technology Center
  Title : Countermeasures against groundwater contamination
- Annual general meeting held by Society of Environmental Conservation Engineering in Sept. 2014. VC Japan supports the meeting and gives a special lecture titled " Trans-boundary pollution in the East Asia of the past 30 years and the future" .

Report to the Government

Ministry of Economy, Trade and Industry (METI)
(Contact point for VC project)
We reported :
The result of the Seoul Workshop
The project achievement and the future plan of VC Japan

METI acknowledged the above reports.

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Promotional activity

1. Corporate member of VC Japan

We asked corporate members to extend their further assistance over our activities.

2. Completing the summary documentation

VC Japan completed the summary documentation of all our activities and achievements. This can be of any help to us in conducting our future activities.
VC Japan will submit this to our corporate members, related organizations and etc. to get further support from them.

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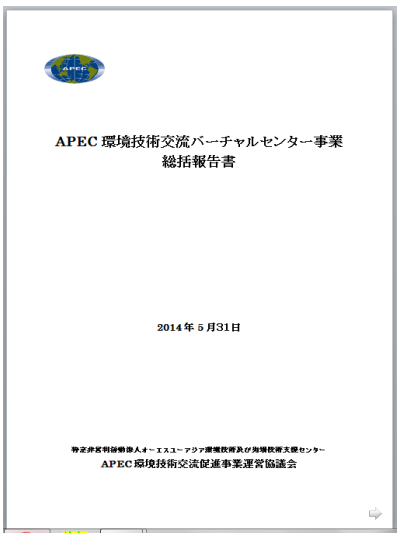
Summary documentation



APEC 環境技術交流バーチャルセンター事業
総括報告書

2014年5月31日

特定非営利活動法人オーエスユーアジア環境技術及び持続技術支援センター
APEC 環境技術交流促進事業運営協議会


APEC-VC Malaysia Workshop 2014
Thank You Very Much!
APEC-VC JAPAN
HITACHI